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ON
DISEASES OF THE HIP-JOINT.

ON
DISEASES OF THE HIP-JOINT;

WITH
OBSERVATIONS ON AFFECTIONS OF THE JOINTS
IN THE PUERPERAL STATE.

WITH PLATES.

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ADVERTISEMENT.

THE present edition of this work will be found to differ very materially in form from the first, and to have received considerable additions. The alteration in the arrangement I have adopted in deference to suggestions which appeared to me judicious, and with a view to make the work more readily available in practice. I have treated more fully than in the former edition of the affections with which the diseases of the hip may be confounded; and I have added a chapter (which may be of value for the cases it contains) on the puerperal affections of the joints, to which, according to M. Dugés, the hip is more than any other liable.

In my investigation of the diseases of the hip-joint,* I regret that I have not yet been able to

* One of my sources of information (and perhaps it is the most extensive field in the world for the observation of scrofulous diseases generally) has been the Royal Sea Bathing Infr-

classify the inflammatory affections according to the structure primarily affected. During the last sixteen or seventeen years, I have not omitted any opportunity which has occurred to me of examining after death the morbid changes in the part. In all the cases I have examined, where the disease could be said to have been in its earliest stage,—the synovial membrane was inflamed, whilst the cartilages and bone were but very slightly affected at the attachment of the ligamentum teres to the head of the femur. In the other cases, all the structures have been involved in the process of disorganization, and to such an extent as to preclude the possibility of determining to the affection of what structure any particular symptom could be referred. I have been obliged, therefore, to confine myself to a classification which I have thought useful for practical purposes, with a view

mary at Margate, an institution which contains upwards of two hundred in-patients at a time, and the out-patients of which are quite as numerous. All persons who apply for admission appear (if able) before the Medical Board in London, which meets a certain number of times in the season, both in the city and at the west end, for the purpose of passing the proper cases into the institution. During the nine years that I have belonged to that Board, I have never absented myself from any one of its meetings in the city, and have also every season (with a single exception) visited the infirmary for the purpose of reporting on the state of the patients.

to the different treatment which the patient may require.

No one can be more fully sensible than myself of the importance of arranging the symptoms and treatment according to the structure principally affected or inflamed, an arrangement which I have adopted in treating of the affections of another part of the body, but the few opportunities which occur to those engaged in the most extensive practice of examining the disease in its earliest stage, and the rapidity with which all the parts become involved in the mischief, render this branch of inquiry replete with difficulty.

*Frederic-Place, Old Jewry ;
December, 1840.*

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ON
DISEASES OF THE HIP-JOINT.

CHAPTER I.

ON INFLAMMATION OF THE HIP-JOINT.

The Disease of the Hip, Coxarthrocace, Coxalgia, Morbus Coxarius, Luxation Spontanée, ou Consecutive du Femur.

SECTION I. ON THE SYMPTOMS.

THE symptoms of this disease may be divided into three stages.

THE FIRST STAGE commences with a stiffness of the limb, which the patient feels most of a morning. A difficulty of stooping forward succeeds, so that the patient feels uneasiness when drawing on his stockings; and, in order to stoop, he is obliged to bend the leg backwards, and place the hand behind the body. A sense of fatigue and weakness, after the slightest exertion, follows. Occasional darting pains are felt down the thigh; and, generally, a peculiar pain at the knee succeeds: sometimes there is pain in the hip itself, but frequently it is altogether wanting.

The pain in the knee is often the only symptom which at first attracts the attention of the patient, and induces him to apply to a surgeon. This pain is generally more severe during the night, and sometimes deprives the patient of rest, or awakes him several times out of sleep. Not unfrequently, at this period, these pains occur periodically.

The surgeon, on examination, finds the knee in most cases sound, although not invariably so; for it sometimes happens that the knee is affected at the same time with the hip; and, even when the knee is not diseased, it is often swollen and painful.

But whatever pain exists, is, by the patient, referred to the knee rather than to the joint actually affected. This pain of the knee almost invariably attends the early stages of disease of the hip, and different explanations have been offered to account for its occurrence.

It is generally believed that the pain is conveyed by the branches of the anterior crural nerve down the thigh to the knee.

Sir C. Bell, however, conceives that it is communicated by means of the obturator nerve. "The obturator nerve," he says, "passes through the thyroid foramen, down to the hip-joint, and after supplying the muscles is distributed upon the inner part of the knee. The nerve in its course is thus involved in the inflammation which affects the hip-joint, and the pain is referred to

its extreme cutaneous branches, at a part distant from the seat of the disease."

This explanation is not, of itself, sufficient to account for the symptoms, for we very commonly find the pain extending along the middle, and even the outer part of the thigh, whilst the obturator nerve is distributed to the muscles on the inner side of the limb.

As soon as the capsular ligament becomes affected, we have sympathetic affection of the knee, and sometimes sympathetic affection of the muscles at a great distance from the part which is the immediate seat of disease, and it has struck me that, from the intimate connection of the long head of the rectus femoris with the outer edge of the acetabulum, and with the capsular ligament, the fascia of this muscle may take on the inflammatory action, and the pain in this way be conveyed down the limb to the thigh. We find something analagous to this in diseases of the shoulder-joint: the pain in these cases extends down the front of the arm to the insertion of the biceps, and the fascia of the biceps is in intimate connection with the capsular ligament of the joint, and the glenoid ligament of the scapula.

At this period, no deviation from the natural condition of the limb or of the spine is discoverable. The spine is straight, and the affected limb is of the same length as the other.

The nates are not altered in form, unless when

a slight fulness is perceptible behind the trochanter and in front of the joint, owing to an accumulation of synovia within the capsular ligament.

In this stage, there is a tendency to incline the foot a little inwards or outwards, doubtless according to the part of the synovial membrane which may be affected; and there is also a tendency in walking to carry the limb straight, as if there were no joint in the knee. The latter is a very remarkable circumstance, and worthy of serious reflection.

In some persons, there is also a difficulty of separating the legs sideways; and in others, though more rarely, a difficulty in bringing the legs together. These, likewise, are most important indications.

The weakness and stiffness which the patient at first experiences, are soon succeeded by a limping gait, or a slight degree of lameness.

All these symptoms (and even the pain in the knee) are at first so slight, as to be entirely neglected, even by adults; and in young children, who have not the power of communicating their sensations, limping or lameness is the first symptom which attracts the notice of the parent, and, when observed, it is too often referred to some other cause than that from which it proceeds.

It thus happens that the disease may exist for some time, both in adults and children, without being discovered.

How long it may remain in this early stage, is, of course, uncertain; depending on the constitution and age of the individual, as well as a variety of other causes. The usual time, however, is from one to six months.

The general health is frequently unaffected in this stage; though sometimes it is otherwise, there being weakness and fatigue on the slightest motion, a delicate look, and towards evening a slight accession of fever.

If the complaint occurs in a scrofulous subject, the inflammatory action will be very much modified by this state of the constitution. It is known, however, that in this and many scrofulous diseases, the inflammatory diathesis is indolent during the first attack, and is not discoverable by the usual symptoms of acute pain and fever. On the contrary, in persons who are not of a scrofulous habit, the local and constitutional symptoms are much more severe. There is great pain behind the trochanter major, and in the groin, accompanied with startings and twitchings of the limb. These symptoms are usually worse at night, and are aggravated by placing the foot on the ground, or by any motion of the body.

After the disease has been arrested in this stage, a limping gait sometimes remains; and after a long walk or great exertion this limping is increased.

It is often difficult to distinguish this stage of hip-disease from incipient caries of the spine; in

the latter affection, pains are, in some instances, referred to one groin and hip; but pains, and a sense of constriction, are also felt afterwards, in the legs and thighs; the muscles are found not to be properly under the dominion of the will, so that the patient occasionally loses a step, or trips in walking; and this is generally followed by a loss of voluntary power over the inferior muscles.

If, however, the surgeon press in the neighbourhood of the hip-joint, either behind the trochanter major or in front, where the *psoas magnus* and *iliacus internus* pass over the articulation; or if he grasp the foot, and rotate the head of the femur against the acetabulum; he soon ascertains that the hip is the seat of the disease.

To determine this, when the patient is laid horizontally on a flat hard surface, as a table or floor, the surgeon grasps the foot of the affected limb in his hand, and, placing the other hand on the knee, he rotates the head of the femur against the acetabulum. The pain which the patient experiences from this particular mode of examination, apprises the surgeon of the mischief going on in the joint. Pressure in front of the joint, and just behind the trochanter, confirms him in his opinion of the seat of the disease.

If the complaint be not arrested at this period, it goes into the SECOND STAGE, which is marked by symptoms too evident to be mistaken or overlooked.

The nates of the affected side are flatter, the folds of the skin considerably deeper; the affected limb seems to be, and generally is in a slight degree, longer than the sound one; the trochanter major is directed more outwards than in the natural state; and the whole limb, particularly the thigh, is thinner and more flabby.



The flattening of the affected buttock occurs in all patients. If, consequently, the back be viewed, from the loins to below the knees, this flattening is, by the contrast, rendered obvious

upon the affected side; the marked division between the hip and the thigh being lost.

It is evidently the condition of the glutæi which causes this flattening of the hip in the erect position; the total inactivity of those muscles causing them to waste. On the sound side, the proper muscular contraction takes place.

The muscles of the leg become also affected, and its power is greatly diminished.

The real or apparent lengthening of the limb, however, in this stage of the disease, is the most prominent symptom.

To render this evident, it is advisable to place the patient in the horizontal position, on a flat hard surface, as a table or floor, and not on any soft yielding substance, as a bed, sofa, &c., because the nature of these will prevent us seeing accurately the deviation from the natural form of the parts. When the person is in this position, we, in most cases, perceive the trochanter, the patella, and malleolus, lower than in the sound limb.

If, after having examined the patient in the horizontal position, he is directed to stand up, we see that he does not rest equally on both feet. The sound limb is extended, whilst the affected one is bent; the knee being lower than that of the opposite side, and the foot generally everted, though it is occasionally turned inwards.

Now, there is scarcely any point connected with disease of the hip which has given rise to more discussion than the explanation of this

symptom ; some contending that there is no real lengthening, whilst others assert that the limb is actually longer than the other.

Those who contend for the latter opinion, conceive that the limb is actually lengthened, either by the expansion of the head of the bone, or by an increased secretion of the synovial fluid, or by matter pushing the limb downwards. Whilst those who contend that there is no real lengthening, say, that the apparent elongation is produced by the position of the pelvis being altered, in such a way that the crista of one ilium is visibly depressed below the level of the other. It is easy to understand how this effect is produced, by observing the position in which the patient places himself when he stands erect. He supports the weight of his body on the sound limb, the hip and the knee of which are, in consequence, maintained in the state of extension ; at the same time the opposite limb is inclined forward, and the foot on the side of the disease is placed on the ground, considerably anterior to the other, not for the purpose of supporting the super-incumbent weight, but for that of keeping the person steady, and preserving the equilibrium. Of course, this cannot be done without the pelvis on the same side being depressed. The inclination of the pelvis is necessarily attended with a lateral curvature of the spine ; and hence it happens that one shoulder becomes higher than

the other, and that the whole figure is in some degree distorted.

The fact is, that the limb is a little lengthened, or rather the trochanter is slightly protruded; and this is well explained by the observations of Palletta, made with a different view.

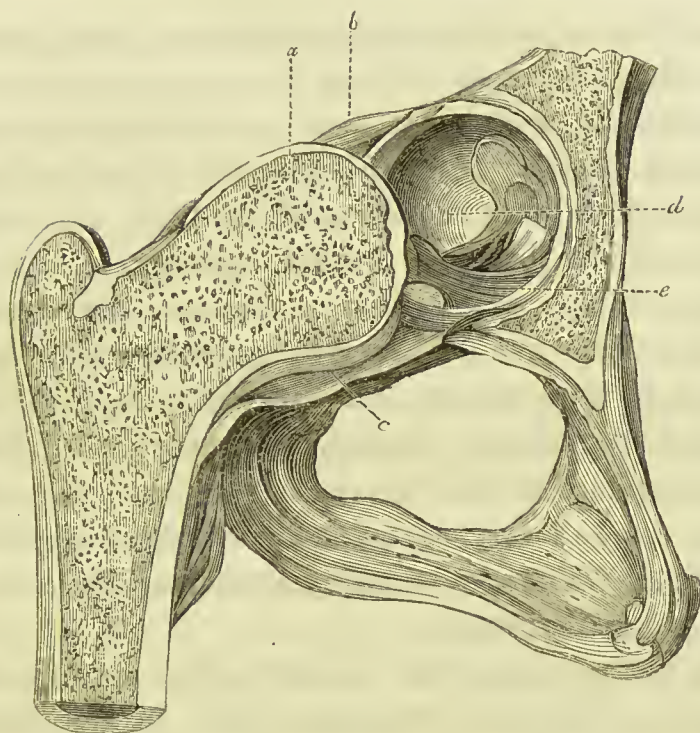
He says, “*Dum pes, nulli fulcro subnixus, artum pendere cogit, videtur caput recedere a fundo acetabuli, intervallo linearum duarum cum dimidiâ. Si femur inflexum est, ejus caput ad cotylis posteriora accidit; proptereaque ab anteriori parte relinquit lineæ unius spatium. Distenditur itidem interius ligamentum, sive artus pendulus sit, sive femur sit flexum.*”

It is surprising that Palletta should not have seen the reason why the limb is left pendent and apparently elongated, and why it is afterwards bent. The greater apparent lengthening is caused by the patient always endeavouring to relieve the affected limb, for which purpose he throws the weight of his body on the opposite side.

The greatest extent to which real lengthening of the limb can take place without destruction of the round ligament, is a little more than an inch, as may be seen in the following wood-cut.

A section of the os innominatum and femur.

- a.* Section of the femur.
- b.* Capsular ligament.
- c.* Synovial membrane.
- d.* Cavity of the acetabulum.
- e.* Round ligament.



We sometimes find the affected limb shorter than the sound one, without the disease having gone into the third stage.—This circumstance is of great importance, both as regards the diagnosis and prognosis of the disease.

Probably, in these cases, the head of the bone may occasionally be drawn by the muscles to the upper edge of the acetabulum, and in this way the already lengthened limb become shorter without being pushed backwards and upwards.

In this case the shortening is never so considerable, and the free motion is never so much impeded in every direction, as in the third stage of the disease. The shortening never continues the same: it varies, and even entirely disappears,

in different positions and directions of the limb: usually it is most evident in the perpendicular position, in which the pain is considerably increased, because in this position the whole weight of the body rests on the affected limb, and the head of the bone is pressed against the upper edge of the acetabulum. Besides, the great trochanter is usually situated more forward; the nates of the affected side are always, as in the second stage, more flaccid, and somewhat fallen in; not harder, broader, and projecting, as in the third stage; and particularly all those appearances are wanting which characterise disease of the hip in that stage.

It cannot, therefore, be difficult to an experienced practitioner in these cases to recognise this stage of the disease, and properly to distinguish this shortening of the limb from the shortening and the irremediable displacement of the head, or from the mere shortening of the limb that occurs in the third stage.

In this stage, the limb is adducted and the foot slightly everted. "*Artus infirmus*," as Palletta observes, "*sustentandæ corporis moli ineptus, divergit a linea centrali, quam in pollicem pedis transmittit inflexo nonnihil genu.*"

The diminished size of the limb is naturally explained by the fact that, in the case of this disease, the larger muscles, which move the leg, lose their power, and, when that is the case, there will be an apparent difference in the circumference of the

two limbs; for, as all muscular fibres in a healthy condition have constantly a tendency to contract, so the muscles of an injured limb become flaccid, and lose that tendency, and the diameter of such muscles will be different from that of sound ones, which becomes very apparent in a case where the disease goes on to ulceration, or even to a more extended stage of disease.

The patient does not remain long in this condition: the pain at the knee, which was before slight, becomes very severe, and impedes every motion of the limb, particularly that of extension. This circumstance, combined with the fact of the pain in the hip attracting but little or no attention, occasionally deceives the practitioner, and in almost every case misleads the patient, as to the real seat of the disease.

In the usual state of the disease, the pulse is commonly regular, the skin cool, and the evacuations as in health. When, however, the disease advances, when the part affected becomes tender, and the pain acute, throbbing, and uninterrupted, the pulse is then accelerated, the face alternately pale and flushed, the skin mostly moist and clammy, the tongue white, while the flesh wastes, and the strength declines. Starting and catching, during sleep, are frequently observed in this stage of the disease, and occasion great distress to the patient.

Not unfrequently an entire remission of all the painful symptoms takes place prior to the occur-

rence of the THIRD STAGE, and the patient begins to entertain hopes of a speedy recovery.

If, however, the disease be not arrested at the second stage, a new and most formidable set of symptoms supervene. The elongated limb becomes gradually, or as is often the case suddenly, shorter; so that on examination it is found one, two, or more inches shorter than the sound limb; and the patient cannot, in the erect position of the body, place the foot of the affected limb on the ground, but only touches it with the toes.





The foot is usually everted ; in the large figure, which is copied from Rust, the foot is turned inwards, whilst in the other, which represents a patient at present under my care, the foot is everted.

In 1836 there were in the infirmary thirty-four cases of diseased hip-joint, two only of which were in the second, and none in the first, stage. In thirty of these cases the toes of the affected limb were slightly everted, and in the remaining four inverted.

The real shortening often occurs without dislocation of the femur having taken place. A case of this kind occurred to me, some time ago, in the General Dispensary. A girl of the name of Dex-

ter, who had been for a long time under my care, died with disease of the hip in the most advanced stage: there was shortening of the limb, prominence of the nates, and abscesses in the neighbourhood of the joint. All these symptoms led me to conclude that there was dislocation of the head of the femur; but, on carefully examining the joint after death, I found the capsular ligament entire, and no dislocation. The head of the bone, and a great part of the neck, had been destroyed by caries, and in this way the shortening was produced without dislocation.

Mr. Liston* similarly tells us, that "the shortening and deformity do not in general arise from that cause (dislocation). The limb assuredly becomes shorter to a considerable extent; but it is not from dislocation. In one of the specimens, taken from a subject about twelve years of age, the limb was shortened more than two inches, but still the head of the bone retained its position in the cotyloid cavity; and you will find, upon looking at all the preparations, that, even where there has been complete loss of the head and neck of the femur, together with a great change in the condition of the acetabulum, there has been no dislocation. The bone has been drawn up a little by the action of the muscles, and has become a little shortened; but it retains its original relation to the os innominatum in all these cases. You will observe further, where ankylosis has taken

* *Lancet*, No. 657, p. 40.

place, that still the bone retains its natural position. Here is one preparation where there is not even a vestige of the head and neck of the bone remaining; but still the bone is in its proper place, and the shortening of the limb, of course, is to be attributed to the loss of substance in the femur, and also to the corresponding destruction of the articulating part of the os innominatum. I have no hesitation in saying that, in almost every instance, this will be found to obtain."

Mr. Wickham, in the same manner, says, "Dislocation from disease in the hip-joint is of rare occurrence, and can only happen when the ring of the acetabulum is broken down by absorption, or the head of the femur so lessened as to allow of a wider range to its movements in the socket, by which a slight degree of irregular action may displace it. I am inclined to think the latter case is unusual, for it may be found that the head of the bone is, as it diminishes from absorption, very gradually and closely drawn into the depth of the acetabulum, and not dislocated."

I repeat, then, that dislocation of the head of the bone, in the last stage of the disease, does not take place so often as is believed; at least our museums do not afford us so many specimens of dislocation as of destruction of the head and part of the neck without displacement. In some of these cases the femur is strongly united to the acetabulum. That, however, which I believe most common is, that the head and portion of the

neck is absorbed, the trochanter drawn towards the acetabulum, and the bone retained in its situation by the capsular ligament.

Sometimes, however, dislocation takes place, and the head of the bone ultimately rests on the dorsum of the ilium, as Plate IV shows. The head of the bone, as well as the greater part of the capsular ligament, have been destroyed, and, there being nothing to counteract the action of the extensors, the femur is drawn upwards. By this dislocation, the length of the limb is shortened by nearly four inches.

Abduction and extension of the limb are difficult when it is dislocated on the dorsum of the ilium; whilst adduction and flexion can be easily performed.

In a case mentioned by the late Mr. Earle, the head of the bone was dislocated into the ischiatic notch.

It sometimes happens that the symptoms which have just been enumerated, as characterising this stage of the complaint, do not present themselves; but a lengthening of the limb takes place, in consequence of the head of the bone being drawn forwards, downwards and inwards, into the foramen ovale. When this occurs, we find the limb three or four inches longer than the other, the knee bent, and the foot turned outwards, with the toes pointing to the ground. A prominence is felt in the region of the groin, from the subjacent head of the thigh-bone.

Cases of this kind, however, are extremely rare. In the museum of the College of Surgeons there is a preparation, presented, I believe, by Sir C. Blicke, in which the head of the femur was dislocated, from the effects of disease, into the foramen ovale.

Mr. Hicks, of Emsworth, had a case of this nature under his care, of which the following is an outline:—Master S., æt. nine years, in 1826 laboured under a severe affection of the hip, accompanied with great constitutional irritation. Matter formed in front of the joint, for the evacuation of which an opening was made. The wound continued to discharge for a long time, and pieces of bone occasionally came away. In the middle of August, 1829, the child had a fresh attack of the disease of the joint. On the 8th of October he was examined by Mr. Hicks, who found the limb much elongated, the knee and foot turned outwards, and the head of the femur near, or in, the foramen ovale. By counter-irritants, rest, and attention to the general health, the complaint in the hip was arrested, and the child restored to perfect health: the deformity, of course, remains. The nates, which were flat, or even flabby, are now become rounded or prominent, and swollen, and the toes are turned inwards.

Boyer relates a case of this kind; and, in reference to this occurrence, says, “The consecutive dislocation downwards and inwards, where the head of the bone descends into the foramen ovale,

is more rare than the dislocation upwards and outwards. Nevertheless, cases of the first kind of displacement are occasionally met with."

Sir Benjamin Brodie, in the last edition of his work, alludes to a case of displacement of the head of the bone in this situation.

To relieve the affected limb of the weight of the body, the patient bends himself forward and to the opposite side; he also bends the thigh on the belly, and the leg on the thigh; and he seeks to keep the latter in this position by means of a pillow, or with his hands. To avoid pressure of the head of the femur upon the acetabulum, the patient, when in bed, also throws the affected thigh over the other, so that its weight may tend to lift the head of the femur out of the socket.

During this stage, the pain is severe in the day, but it is chiefly so by night; the patient wakes out of his sleep screaming and complaining of frightful dreams. He cannot bear to be moved, and generally twists himself into a very awkward posture, making one hip very much to bulge out and the knees to cross each other, so that there is a great deal of deformity.

The following sketches, copied from some of Sir C. Bell's,* illustrate the different positions which patients acquire in this stage:—

* Medical Gazette, vol. xiv.





With extensive mischief going on in the interior of the joint, we may expect to find the neighbouring parts participating in the disease.

When the glutæi are affected by the inflammation proceeding within the joint, the formerly wasted nates become tumefied, the surrounding cellular tissue inflames, the skin is put on the stretch and the superficial veins are distended, a red spot presents itself either on the nates or outer side of the thigh, and if an opening be not made, the skin at last ulcerates and the abscess discharges itself. The formation of matter is indicated by the tumefaction, and, in most cases, by the great pain of the part, and the severe rigors

with which the patient is affected. In the majority of instances the glands in the groin become enlarged and painful.

Generally these abscesses open on the nates, in the groin, or on the upper and outer part of the thigh. Sometimes the ulceration extends through the acetabulum, and the matter, passing into the pelvis, descends, by fistulous openings, to the side of the anus, or more easily into the rectum. The flatus then comes through the sinus, and proves the existence of communication not only with the pelvis, but with the rectum. The abscesses occasionally open into the vagina, whence the matter is discharged.

Last year I attended a case in which matter had made its escape from the affected joint into the pelvis, so as to press on the neck of the bladder, and had caused paralysis of that organ. On examination after death I discovered that the matter had escaped through the acetabulum to the posterior part of the bladder, and had made a lodgment close to its neck.

The nature of the discharge from abscesses varies considerably; sometimes it is healthy pus, and at other times it is fetid, sanious, or black; and it is observed that when the matter possesses this character, small portions of bone frequently come away. Even the head of the bone has occasionally come away almost entire. Hoffman mentions two cases where the detached head of the femur made its way through the abscess, and

was removed by the assistance of the surgeon. The coming away of the bone is attended with great pain and constitutional irritation.

The duration of the discharge is uncertain; sometimes continuing for a long time, and in other cases for a shorter time, then ceasing and returning again. In some rare cases hæmorrhage takes place from one of the fistulous openings, and to such a degree as to cause death.

If the discharge of the abscess is of a healthy character and gradually diminishes, and the health of the patient does not sink and the fever subsides, expectations may be formed of a favourable termination of the case; if, on the contrary, the discharge becomes more thin and dark, with a bad smell, and the hectic fever increases, and the strength of the patient fails, but slight hope can be entertained of recovery.

Heetical symptoms will sometimes ensue, after the spontaneous bursting of an abscess from the hip-joint; and doubtless they require the utmost attention and assistance. Colliquative sweats and purgings, great emaciation, and prostration of strength, frequently occur under the mildest possible treatment of the disease. When the abscess has burst, the patient will lie, sometimes for months, without the ability of assisting himself, and will scarcely bear to be touched in bed without crying out from the pain in the joint; all this may be considered as a natural consequence of the loose and unconnected state of the

carious bone, and of the irritable state of the fleshy parts surrounding it; nevertheless, this most unpromising case will sometimes terminate successfully.

It must be observed, however, that external suppuration is not a necessary consequence of the caries of the hip-joint and of shortening of the thigh-bone; for, in some instances, the disease will go through all its stages, and even dislocation or anchylosis occur, without any external suppuration taking place.

It was shown by Mr. Hunter, that suppuration and ulceration are not necessarily connected, at least that we may have suppuration of the mucous and other membranes, without their being ulcerated, and there are numerous facts connected with the pathology of the joints which establish the converse of this, showing that ulceration may take place without the formation of pus. With Mr. Coward, of Hoxton, I saw a lad whose left hip was dislocated very near to the ischiatic notch. The patient was fourteen years of age, and was seized about eighteen months prior to my seeing him with strumous inflammation of the right knee-joint. He was in the habit of placing his left leg under the right leg and thigh, and in the act of bringing the left leg into this position, the head of the bone must have been dislocated. The boy is of a very strumous habit, and, at the time of the dislocation taking place, was in a very

emaciated state, and subject to severe attacks of spasm.

Heister mentions a remarkable case of a lad fourteen years of age, who had an œdematous swelling of the foot, on which a small sore made its appearance; when this healed, the right foot was perceived to be shorter than the left, and so weak that he could not walk on it. On a closer examination, the head of the bone was found dislocated upwards and backwards.

In many cases, after the cartilages of the acetabulum and the head of the femur have been destroyed, these parts, as already stated, ankylose without any dislodgment of the femur.

In other cases, the upper part of the femur becomes ankylosed to the surface of the ilium, on which it is placed; and the acetabulum is filled up, partly by new matter of soft texture, and partly by deposition of osseous matter.

In all cases, ankylosis between the head of the femur and the acetabulum is the most favourable termination that can be expected of the complaint; for the only effect which then remains is a certain degree of shortening, and impeded motion of the limb.

In some instances the attempt at the formation of a new joint is set up. The bony surfaces from which the cartilages have been removed become hard and polished, and although the ligaments are thickened, and some external deposition of

bony matter has taken place in the ligaments and cellular membrane, yet a certain degree of motion of the joint is permitted.

In this advanced stage of the disease, there is great prostration of strength and emaciation of the whole body, with night sweats and hectic fever, and the patient not unfrequently falls a victim to the complaint, or rather the consequences of the complaint. For in scrofulous affections of the joints left to pursue their course, it is not the articular disease which is directly fatal : the exhaustion of the frame and strength tends to produce disease in the mesentery, or lungs, or in both, and to prove the immediate cause of dissolution.

Patients are sometimes suddenly taken off in this stage by some affection of the brain. In 1838, Henry Eagle, an in-patient of the infirmary, with disease of the hip-joint in the third stage, was suddenly seized with cerebral symptoms and died in five days.

The disease may continue many years before it is subdued ; and various causes may contribute to check or hasten its progress.

A patient was admitted into the infirmary who had been affected with disease of the right hip-joint six years, without its going into a state of suppuration, and who, during this period, had been pregnant six times, the progress of the case having been arrested by the state of pregnancy.

A case is mentioned by Ford, which, after eighteen years' continuance, terminated fatally from imprudently taking exercise.

Joseph Mitchell, æt. 51, boot-closer, was admitted into the infirmary, with disease of the left hip-joint, of forty-five years' standing. He says that, when six years old, he fell down and struck the joint, which set up the disease that went through all its stages. Ever since that period, matter occasionally forms and evacuates itself on the outer side of the thigh, near to the great trochanter. The formation of the matter is ushered in by shiverings and very severe pain, compared to a stabbing or darting in the joint, by involuntary convulsions and twitchings of the limb, which occasionally continue for some time, and by great derangement of health. For two or three years at a time, he remains free from all bad symptoms, and is able to follow his occupation with ease. The limb is shortened four inches, and there is eversion of the foot. His former symptoms having returned, and his health being very much deranged, he was induced to seek admission into the infirmary.

On the contrary, the disease is sometimes very sudden in its progress : terminating fatally, even within a few days from the occurrence of the attack.

Sir B. Brodie informs us that a young lady, nine years of age, being at play, on the 1st of

January, 1808, fell and wrenched her hip. She experienced so little uneasiness, that she walked out on that day as usual. In the evening she went to a dance; but while there she was seized with a rigor, was carried home, and put to bed. Next morning, she was much indisposed, and complained of pain in the thigh and knee. On the following day, she had pain in the hip, and was very feverish. These symptoms continued; she became delirious; and she died just a week from the time of the accident.

On inspecting the body, on the following day, the viscera of the thorax and abdomen were found in a perfectly healthy state; the hip-joint, on the side of the injury, contained about an ounce of a dark-coloured pus; and the synovial membrane, where reflected over the neck of the femur, was destroyed by ulceration to about the extent of a shilling.

The same surgeon mentions the case of a woman, who died a week after a severe contusion of the hip: the cartilage of the head of the femur was found, in some parts, entirely absorbed; in others, it had a fibrous appearance; and he has noticed the same circumstances in other cases, sometimes connected with, and sometimes independent of, local injury.

Generally speaking, the duration of the complaint is not so long in children as in adults. A child, three years old, of a scrofulous habit, was sent to me with an affection of the hip, which

had gone into the third stage in less than three months.

The power which the patient acquires of using the dislocated limb, after the disease has subsided, is very great. I attended with Mr. Greeves, surgeon, a young woman, whose thigh-bones were both dislocated from disease, and who could nevertheless walk about very well, without any pain and inconvenience to herself; and Mr. Wickham has given the drawing of a case related in his work, in which there was dislocation of both hips from disease.

In many persons, with disease of the hip, there is that state of the chest which I have described, the pigeon breast.* The sides of the chest are very much flattened, one side being sometimes more depressed than the other; the ribs occasionally appear even as if driven inward, or as if passed from one side to the other; and in some children this compression exists to such an extent, that the two sides of the chest can be grasped with the fingers of one hand. In consequence of this, the sternum projects in a carinated form, or like the breast of a pigeon, whence persons with this deformity are called *pigeon-breasted*. The sternum, however, is not always so prominent as it at first sight appears to be, the projection being formed by the sternal extremities of the ribs, and the sternum itself being either flat or a little concave at its lower, and projecting at its upper part.

* On Deformities of the Chest and Spine, 2d edit., p. 82.

There is always some alteration in the natural direction of the spinal column; either a lateral curvature, which I believe to be common, or a projection of the spine backwards.

While the transverse diameter of the chest is of course considerably lessened, the antero-posterior and vertical ones are increased; so that, while the former loses a fourth, a third, and sometimes half of its extent, the others receive a proportionate increase.

From the depression of the sides of the chest, the action of the heart is embarrassed, and it may be seen strongly pulsating against the ribs; the lungs are compressed from the same cause, the circulation is hurried, the breathing is quick, and often difficult, being generally performed through the mouth; sneezing and short dry cough occur; the nostrils appear as if stopped up and the tonsils are generally enlarged.

In rheumatic subjects, an affection of the hip occurs* which presents some of the symptoms of this stage, but which does not go into a state of suppuration. The patient first complains of stiffness in the hip-joint and about the great trochanter; also a dull pain which extends down

* In the sixth volume of the Dublin Journal of Medical Science, there is a paper by Mr. Smith on the injuries of the joints, in which communication he has given an accurate account of this affection, and, in the fifteenth volume of the same Journal, Mr. Colles has related a case of this disease. Mr. Adams, of Dublin, has lately published an excellent account of the disease in question in the Cyclopædia of Anatomy, edited by Dr. Todd, Article, Hip Joint, Abnormal conditions of. He has given it the name of chronic rheumatic arthrites of the hip joint.

the front of the thigh to the knee. "The stiffness," says Mr. Adams, "is most felt in the morning, when the patient commences to walk; but after exercise the movements of the joint become somewhat more free. In the evening, especially if the patient has had much walking exercise during the day, the pain is always more severe. The uneasiness, however, gradually subsides after he has retired to bed. The pain is always increased when the patient throws the weight of his body fully on the affected joint. But let a surgeon press on the great trochanter, or adopt any other expedient so as to push the head of the bone even rudely against the acetabulum, and these manœuvres are the source of no uneasiness whatever to the patient. When we place the patient in a horizontal position, and endeavour to communicate any of these movements to the hip-joint, the patient complains of pain, and an evident crepitation can be heard and felt deep in the articulation. The limb is apparently shortened from two to three inches; the apparent shortening arises from the obliquity of the position of the pelvis relatively to the spine, and the elevation of the affected side is such, that the crest of the ilium and the last short rib approach nearer to each other at this side in the ordinary attitude of standing by two inches than those of the opposite side. All these circumstances account for the apparent shortening of the limb, which however, on accurate measurement, will be found not to be really shortened more than an inch. The patient

walks very lame, with the foot and whole limb greatly everted. The nates of the sound side are unusually prominent, while those of the affected side are quite flat, and no trace of the lower fold of the gluteus is seen. The muscles of the thigh are also somewhat atrophied, still they do not want for firmness; and we may uniformly observe, that the calf of the leg of the affected limb is not inferior in size and firmness to the other. When we minutely examine the great trochanter, we find it more prominent than usual."

The following wood-cut illustrates the gait in this affection.



The patient is sixty-two years of age, and has suffered from this complaint in the left hip upwards of ten years. He was at the Margate Infirmary five years ago, but derived very little benefit. The limb is shortened about two inches.

The disease of the hip in this stage may be mistaken for psoas abscess; attention, however, to the following points will materially assist us in our diagnosis. First, in psoas abscess, the patient complains of violent or dull pain in the region of the loins, which is very much increased in the upright posture of the body, and by every motion of the limb, particularly on extending it: in the diseased hip, there is no fixed pain in the loins; it is felt more in the neighbourhood of the hip, and especially in the knee. Secondly, in psoas abscess, during the whole course of the complaint, there is no deviation to be perceived in the natural situation of the trochanter, and no difference in the length of both limbs: in diseased hip, on the contrary, this is always the case. Thirdly, in the affection of the psoas muscle, the patient cannot turn the foot of the affected side outwards, without increasing the pain: in diseased hip, on the contrary, the foot is generally turned outwards. Fourthly, on taking a deep inspiration, on coughing, crying, and in the erect posture of the body, the fluctuating swelling either on the nates or in front of the thigh increases, and the exit of matter, if the abscess

burst or be opened, will be facilitated: in abscess of the hip-joint from disease, neither is the case.

In this stage also the disease of the hip may be confounded with deep-seated formation of matter in the region of the groin: either connected or unconnected with a carious state of the bones of the pelvis. In these cases, there is very acute pain in the anterior region of the hip, with shiverings, and inability to rest the limb on the ground; but the great diagnostic mark is the absence of pain on rotating the head of the femur. There is no pain over the posterior part of the joint, or at the knee. I attended a case of this kind with Mr. Garrod, of Hackney, and it was involved for some time in obscurity.

SECTION II. ON THE MORBID ANATOMY.

IN disease of the hip, the parts entering into the formation of the joint undergo, as might be expected, very considerable changes. The nature of these changes depends, in a great measure, on the extent of the disease, and on the constitution of the person attacked by it. But the appearances met with will be found to vary more in circumstances marking the extent of the disease, than any difference in its nature. The synovial membrane, in particular, becomes inflamed; in slight cases a few vessels, injected with red blood, are seen ramifying over the inner surface of the membrane, and the joint contains a larger quantity of

synovia than under ordinary circumstances. But as the disease proceeds, there is great increased vascularity of the whole of the texture, which is thickened, and is often found lined with coagulable lymph, adhering to it in different degrees of thickness; and this substance also lines the acetabulum, and is often spread over the head and neck of the femur. At other times the synovial membrane secretes thick purulent matter, or is converted into a gristly substance. In the progress of the disease it is often completely destroyed.

The inflammation usually extends along the ligamentum teres, which presents a very vascular appearance; the ligament soon ulcerates, and in time is entirely absorbed.

The capsular ligament is sometimes loose and spongy, at others thickened, and perforated by several fistulous openings communicating with the joint. In the advanced stage of the disease, little or no vestige of the ligament is left.

The articular cartilages are found to be thinner in some parts, or totally destroyed by ulceration in others. Sometimes that of the acetabulum is first affected; sometimes that of the femur; and, sometimes, ulceration begins in both at the same time. At other times the cartilage is converted into a fibrous substance first, and this substance afterwards becomes ulcerated; or the cartilage is completely destroyed, and occasionally replaced by an ivory or almost vitreous deposit. Loose

floating portions of cartilage are occasionally found in the joint after death. Cruveilhier* relates a case in which he found fifteen loose fragments of cartilage in the hip-joint. The cotyloid and transverse ligaments are generally destroyed.

The socket is widened and rendered shallow by this process, the bare surfaces of the bone become carious and ulcerated, and the head and even the neck of the femur is lessened, so that the parts composing the joints are no longer fitted to each other. In scrofulous inflammation of bone, the earthy matter becomes absorbed, and the bone consequently softened, whilst the cancelli are filled with a yellow caseous matter, or a transparent yellow fluid.

Mr. Lloyd† says, “It often happens, that the whole of the cancelli are nearly filled with this cheesy matter, or that several of the cellular partitions being broken down, a large mass of it is collected at one spot, while the rest of the cancelli remain entire, and are filled partly with the yellow fluid; while many of them may appear altogether empty, not even containing any of their natural secretion. Sometimes we find that only a part of the cancellous structure of the head of the bone has undergone this change: indeed I am inclined to believe that it often begins in the centre, as I have found the deposition of the new matter is very frequently greater there, and the exterior of

* Archives Générales de Médecine, t. 4.

† On the Nature and Treatment of Scrofula, p. 120.

the bone commonly remains hard, as has been observed by Wiseman (p. 252); while the interior is completely deprived of its earth, and so soft as to be readily cut with a knife. Sometimes, however, only one side of the bone will be affected, and the whole of the deposit will be found there. It occasionally happens that all the bones of a joint are affected in this way; but it often occurs that only one of them shall undergo this change. Sometimes, too, the cheesy matter pervades the cancelli of the whole bone, and is deposited in innumerable portions of the most minute size."

Mr. Adams* says that there are often found osseous growths exterior to the hip-joint in the os-innominatum and femur as the result of scrofulous inflammation of the articulation. These growths are generally friable stalactiform productions which beset the bones, and are to be seen in the numerous specimens illustrating the morbid anatomy of morbus coxæ, which are contained in the museums in Dublin. Notwithstanding these osseous productions or vegetations, the bones are found to have diminished much in their specific gravity. These growths are, however, only met with in the *post mortem* examination of such chronic cases as have manifested in their course various alternations of improvement and reverses; they are almost invariably found when the caries of the bones had been arrested, and an imperfect attempt at ankylosis had been made.

* Op: cil.

In Mr. Liston's collection there is a specimen showing extensive destruction of the acetabulum, head and neck of the femur, with several sinuses leading from the joint; and one in particular, of large size, leading towards the rectum through the foramen ovale. There is also the rectum corresponding to this preparation, with a rounded aperture sufficient to admit the point of the little finger, about an inch and a half above the anus.

The head of the bone is sometimes displaced, and, by the action of the muscles, drawn upwards and lodged on the dorsum of the ilium.* In rarer cases, the upper extremity of the femur, after being dislodged, has been drawn downwards and inwards, into the foramen ovale. In still rarer cases the head of the femur is drawn forward, and rests on the pubes, the knee and toes being turned outwards.

Mr. S. Cooper† mentions a singular instance of a new articular cavity being formed in the upper portion of the femur, and a new ball on the ilium. The old acetabulum is nearly obliterated, and near it, within the pelvis, are the remains of the cyst of an abscess. This preparation is in University College Museum. In the same museum is a specimen, in which the head of the femur has passed through the acetabulum into the pelvis.

In a case under Dr. Mackenzie, of Glasgow, a lad of sixteen died of enormously enlarged liver; on dissection a communication was found through

* Vide Plate IV.

† Surgical Dictionary, 7th edit., art. Joints, Diseases of.

the bottom of the acetabulum, between the cavity of the hip-joint and the colon, smooth, as if of long standing.

In the last stages of the disease, the acetabulum is sometimes filled up by a whitish organised substance varying in hardness; all distinction between synovial membrane, capsular ligament, cellular membrane, and this new substance, being lost; and the whole being converted into a similar mass. This condition of the acetabulum occurred in the following interesting case related by Mr. S. Cooper* :—A boy, fifteen years of age, died of disease of the hip-joint, and on examination the head of the femur was found on the dorsum of the ilium, directly above the acetabulum, and on the upper border of the sciatic notch, in the centre of a vast abscess, which extended through this notch into the lower pelvis. Here the pus was shut out from the peritoneal cavity by the obturator fascia and peritoneum. In front the abscess had passed upwards under the psoas and iliacus muscles, so as to occupy the iliac fossa, but without communicating with that part of the abscess already described, and which extended into the pelvis through the sciatic notch. The brim of the acetabulum was obliterated, and the cavity itself filled up partly with a fungoid mass, and partly with firm coagulating lymph. The brim of the acetabulum was rough and gritty, and the os ilium above the acetabulum destitute of periosteum.

* London Medical Gazette, Session 1838-9, p. 255.

The head of the femur had lost most of its cartilaginous investment, and was carious and irregular at various points.

In the anatomical examination of those who have died in the advanced stages of the scrofulous disease of the hip, if the patient have not arrived at the age of puberty, we find that very frequently the original portions of the os innominatum are separated from each other for several lines, that the epiphysis of the head of the femur is completely detached from the shaft of this bone; the greater and lesser trochanters are sometimes in very young subjects removed by absorption, and evidence of devastating caries is found in the bottom of the acetabulum.

The bones of the pelvis often suffer very considerably in this disease. In some cases, the os innominatum is more extensively affected by caries than the thigh-bone itself.*

In those cases which have been examined, in which the curative process has begun, — the ligaments are found, in some instances, thicker than usual, with a soft substance, which seems to have been first thrown out as coagulable lymph, but now forms a solid and organised mass, adhering to a greater or lesser portion of their internal surface; and in cases where the articular cartilages have been absorbed, this substance is found to pass between the surfaces, which when

* Vide Plate III.

covered with cartilage moved on each other, and now to unite them by adhering to, and receiving vessels from, each ; thus forming the connecting medium through which ankylosis takes place. If the capsular ligament be not destroyed, the carious head or neck of the bone is drawn towards the acetabulum, and dislocation usually does not take place. Ankylosis of the head of the bone in this situation takes place. At other times, the head of the femur is dislocated ; and ankylosis takes place between the femur and dorsum of the ilium, or a new joint may be formed here, and a certain degree of motion be allowed. When the head of the bone is dislocated, ossific deposit is thrown out in the acetabulum, which in time becomes almost obliterated.

Necrosis of the femur may extend to the neck of the bone and produce disease of the joint. In such a case, however, the proper articulating surface is never destroyed, for the cartilage which belongs to the original bone still remains in its place, and the capsular ligament is nowhere injured or opened. "I never have known," says Russell,* "an instance in which the articular cartilage came away in a case of necrosis. It seems, however, to undergo a change, in order to accommodate itself to the enlargement which takes place at the head of the new bone ; for that piece of cartilage, which tips the head of the new

* On Necrosis, p. 77.

bone, is always considerably broader than the surface of the original cartilage, and consequently must have increased in size, in proportion to the greater extent which it had to cover."

Albers and Rust have described the change which the bones of the pelvis undergo in their form and situation. The pelvis, in those who have for a long time gone lame, is pushed upwards; and the sacrum is flat and straight: in a few cases, however, it is more curved than in the natural state. The coccyx is bent strongly forwards, and the connection of the last lumbar vertebra with the sacrum forms a right angle. The ilium of the affected side stands higher, and has, in general, a perpendicular direction, and more of a triangular form. The external surface is smooth, whilst the fossa appears more hollowed than usual. This hollowing probably depends on the action of the *iliacus internus*, which is greater than that of the *glutæi*. The horizontal portion of the pubes often seems lengthened, and lower than in the natural state, and the ischium is usually drawn outwards and forwards. The perpendicular direction of the foramen ovale is changed more to a horizontal one, and the opening assumes more of a triangular form, its base being turned to the acetabulum. In consequence of the changed situation of the bones of the pelvis, its different diameters undergo an essential deviation from the natural state. The superior aper-

tures of the pelvis are commonly somewhat oblique; and the pelvis is broader on the affected side from before backwards.

Dissections of those persons who have walked lame for a long time in consequence of this complaint, show that the muscles have been exercised in a different direction from the natural one. Some are relaxed, particularly the three glutæi, which are quite drawn together and shortened. In addition the anterior part of the glutæus medius and minimus is drawn backwards, and the back part is pressed, in an almost straight direction, on the trochanter. Other muscles are drawn forward with the dislocated limb, as the obturators. The gemini, the pyriformis, and quadratus, become shortened, as the femur is drawn nearer to their attachment. Other muscles, from similar causes, are drawn inwards; and this is the case with the psoas and iliacus internus. The triceps, gracilis, and pectinæus are drawn outwards. Under the tendon of the rectus femoris, which is drawn backwards, the head of the femur ascends. Sometimes several muscles are found entirely hardened by the preceding suppuration, joined together, and converted into one tendinous mass. The sciatic and crural nerves are found on the stretch or pushed to one side. Sir B. Brodie mentions a case in which he found two enlarged lymphatic glands, each of the size of a walnut, immediately below

the crural arch, on the fore part of the joint: and these lay in contact with, and immediately behind, two branches of the nerves, so as to keep the latter on the stretch, like the strings passing over the bridge of a violin.

I have given in the preceding description an account of the morbid changes which the parts entering into the formation of the joint undergo in this disease; but it must never be forgotten that the diseased action is not confined to the joint, that the whole glandular system is often affected, especially the inguinal, pelvic, and mesenteric glands, and the liver. The lungs are also frequently diseased, as many of the patients die consumptive.

SECTION III. ON THE PATHOLOGY.

THE few opportunities which occur to those engaged in the most extensive practice of examining the hip-joint in the early stage of disease (for seldom do we examine this part until most of the structures entering into its formation are involved in mischief), occasion great difficulty in learning the true pathology of this joint. Hence different opinions are entertained respecting the structure primarily affected; it is commonly supposed that the disease when occurring, at least in a scrofulous constitution, originates in the bony structure. The appearances which I have observed on dissection in the earliest stage of the

disease lead me, on the contrary, to infer that the disease commences most frequently in the synovial membrane, that the round ligament is very early destroyed, and that the disease of the cartilage and bone usually follows that of the membrane.

To do justice, however, to this important portion of the subject, I must lay before the reader the doctrines of the ablest authors respecting it.

Albers says,* “I was a long time uncertain whether really the bones, as Ford asserts, were the parts first affected in this complaint. But partly through the excellent work of M. Doerner,† and partly through the opportunity of opening a body in the first stage of the disease, I felt myself compelled to adopt that opinion. I found, for instance, an extensive destruction of the edge of the acetabulum, where the other parts of the hip-joint, viz., the cartilages, with the exception of a yellow spot, had suffered little or nothing. It is not improbable that the head of the bone is at first very frequently attacked with inflammation. As the consequence of this inflammation, the form and texture of the bones, particularly in young subjects, become changed, their cells are widened.”

* Preisfrage, worin besteht eigentlich das Übel, das unter dem sogenannten freywilligen Hinken der Kinder bekannt ist? Beantwortet von J. A. Albers, Wien, 1807.

† De gravioribus quibusdam Cartilaginum Mutationibus. Tübingæ, 1798.

Rust* says, "I believe that this disease has its origin in a morbid change of the head of the thigh-bone, and that the diseased appearances in the other parts of the joint are to be considered as the effect of the previously existing mischief of the head of the bone."

Sir Benjamin Brodie is also of opinion that in strumous constitutions, the disease commences in the cancellated structure of the bone, and that the affection of the cartilages and synovial membrane is secondary in the order of attack. He thinks, however, that in cases which are not of a scrofulous character, the disease may originate in the cartilages, or in the synovial membrane, and that we may determine by the symptoms the particular structure affected. He observes that "if the patient is not that kind of person whom one would judge to be predisposed to what is called scrofula, it would be a reason for suspecting that it is not a case of strumous affection of the bone. Again, if the patient be above twenty-five years of age, it is more likely that he will have simple ulceration of the cartilage, than the true scrofulous disease. Another important diagnostic mark is this:—A much greater amount of pain attends the disease in its early stage, in case of simple ulceration of the cartilage, than where the ulceration is combined with scrofulous disease of the bone. One most remarkable circumstance con-

* *Arthrokakologie oder Über die Verrenkungen, durch innere Bedingung, &c. &c.* von J. N. Rust, Wien.

nected with scrofulous disease of the bone is, that there is so little pain in the first instance, the patient going on for weeks, and yet the disease being scarcely noticed. But in simple ulceration there is generally severe pain at an early period. In scrofulous disease of the bone you have very little pain in general, till the cartilages are extensively ulcerated, and matter begins to form, but in the other cases there is a great deal of pain long before that period has arrived."

Mr. Key* says, "The cases which it has fallen to my lot to examine have induced me to believe that the ulceration of the cartilage is preceded by inflammation of the ligamentum teres. In the drawing of the early stage of this disease, which I lay before the society, will be seen the usual morbid appearances that I have met with.† This joint was taken from a young female who for six months prior to her death had laboured under the usual symptoms of chronic inflammation of the hip-joint. The symptoms had partly yielded to the treatment employed, when she was attacked with another disease of which she died. The ligamentum teres was found much thicker and more pulpy than usual from interstitial effusion; and the vessels upon its investing synovial membrane were distinct and large, without being filled with injection. At the root of the ligament,

* Medico-chirurgical Transactions, vol. xviii. p. 230.

† Vide Plate I. I am indebted to the kindness of Mr. Key for permission to use this drawing.

where it is attached to the head of the femur, a spot of ulceration in the cartilage is seen, commencing, as it does in other joints, by an extension of the vessels in form of a membrane from the root of the vascular ligament. The same process was also taking place on the acetabulum where the ligamentum teres is attached."

The cause of the round ligament being early destroyed, is worthy of serious consideration. It differs from the other ligaments in two important circumstances, its conducting the vessels to the more vascular synovial membrane, and its being closely invested, from end to end, by that vascular expansion, which is obviously most liable to diseased action. To that circumstance, therefore, we are compelled to impute its early suffering in this disease.

That the synovial membrane of the hip-joint is often primarily engaged in this disease, we may infer from one of the first symptoms which marks its commencement, a fulness of the groin, depending in all probability upon the increased secretion into the joint, similar to that which we know takes place in synovitis of the knee.

Cruveilhier* says, *Il est résulté de mon observation que, dix-neuf fois sur vingt, ces maladies articulaires ne sont autre chose que des inflammations chroniques des synoviales; que dix-neuf fois sur vingt lors même que tous les tissus fibreux*

* Dictionnaire de Médecine et de Chirurgie pratiques, tom. troisième, art. Articulations.

et cellulaires qui entourent une articulation ont été envahis avec la synoviale, c'est la maladie de la synoviale qui a précédé et qui domine."

Few stronger confirmations than these can be given of the truth of the doctrine I have proposed.

"L'usure des cartilages est un des effets les plus graves de l'inflammation des synoviales : cet effet persiste indépendamment de la cause qui l'a produit, et alors les malades éprouvent une rigidité singulière dans l'articulation ; ils sentent, ils entendent des craquemens dans l'exercice des mouvemens."

Equally in favour of these views is the puffing around the joint, and the slight protrusion of the trochanter.

Not less in favour of them is that adduction of the limb by which the head of the bone is thrown outward and upward, or carried directly away from the seat of the vessels, the so-called synovial gland, and the contact of the synovial membrane.

So, also, all the most successful methods of treatment.

A case not less decisive recently occurred in my own practice :

Caroline Long, æt. twenty months, of a scrofulous constitution, was brought to me, in April, 1836, for an affection of the right hip-joint. There was wasting of the nates and of the whole extremity, and apparent lengthening of the limb.

As the child was then cutting its teeth, I was

inclined to regard the affection as that which occurs in children during this process. But, very shortly, I found that disease was going on in the joint: the trochanter was thrown more forward; the nates were more projecting; the leg was bent on the thigh; and the thigh, on the pelvis; and the child rested on the opposite side, and appeared in great pain, not allowing the joint to be in any way moved.

Blisters were applied to the joint; warm bathing, which at first very much relieved the child, was tried; and opium was administered to allay the pain.

The child went on in this state of suffering until the 13th of last June, when it was seized with convulsions, and it died on the following morning.

In the evening, I examined the body with Mr. King of Cateaton Street, under whose care the child had latterly been.

On measuring both limbs, we found the right a little shorter than the left. The muscles in the posterior region of the joint were much attenuated as compared with those on the opposite side; but the psoas and iliacus internus did not appear altered.

On opening the capsular ligament, some thick yellowish matter escaped, resembling, in consistence, the cortical substance of the brain. The quantity amounted to half a table-spoonful. The

round ligament was completely destroyed, and the synovial membrane inflamed.

There was absorption of some portion of the cartilage covering the head of the femur, and of the cartilaginous rim of the acetabulum; but on making a section of the femur, the bone was found healthy, and the cartilage no further diseased.*

The left hip-joint was quite healthy.

The peritoneum was inflamed throughout its whole extent, and studded with small tubercles. The mesenteric glands, as well as the pelvic and bronchial, were enlarged and vascular, but not in a state of suppuration. The viscera were not diseased.

Plate III. illustrates the disease in the joint; and the diseased parts are now in my possession.

I may mention another case which confirms the view I have taken of the origin of the disease.—With my friend Dr. Lambe, I had some time ago an opportunity of examining the body of a child six years old, who died of an inflammatory affection of the lungs, but who, at the time this illness commenced, was labouring under incipient disease of the right hip-joint. The synovial membrane was inflamed, particularly that part investing the round ligament; the red vessels extended along the ligament over the cartilage of the head of the femur; and I know of nothing with which

* Vide Plate II.

I can so well compare the appearance of the cartilage as the conjunctival membrane of the eye in a state of incipient inflammation.

Since the publication of my former edition, a lad, thirteen years of age, died in the Infirmary of ascites consequent on lumbar abscess. The right hip was slightly affected, the ligamentum teres presenting a very vascular appearance; it was of a dark red colour, but on exposure to the atmosphere the vessels assumed a florid appearance. The cartilage was sound excepting at the spot where the ligamentum teres was attacked.

In the rheumatic affection of the joint described at page 32, the ligamentous structures are no doubt very early, if not primarily, affected, for the fibrous capsule is found greatly thickened, the cotyloid ligament either ossified or absorbed, and the ligament which completes the notch converted into bone. Illustrating the fact that ligament is susceptible of inflammation, Mr. Mayo* says, "I cannot, indeed, say that I have seen, after death, what was identified as inflamed ligament; but in rheumatism, gout, and syphilis, it is impossible to doubt the existence of inflammation of this tissue. In joints of which the other tissues have been the seat of inflammation and ulceration, the ligaments are found softened, and less opaque than natural.

"Syphilitic pains in the joints appear to have

* Outlines of Pathology, by Herbert Mayo, p. 80.

their seat in the ligaments, although the synovial membrane is liable to be involved in the inflammation.

“The ligaments are probably involved in rheumatic inflammation of joints, although the principal seat of articular rheumatism is synovial membrane.

“The ligaments are liable to be involved in gouty action, as is rendered likely by the seeming superficialness of the inflammation, and proved by the gouty deposit being found in their tissue. This deposit, indeed, is secreted everywhere; it is found in the synovial membrane, in the cartilage, and in the cancelli of the bones, as well as in ligaments; but its principal seat is in the latter, or rather in the cellular tissue on its outer surface.”

Dr. Nicolai, of Berlin, in a Latin prize essay, which was crowned by the Cercle Medical of Paris, has described an affection of the joints originating in the cellular tissue exterior to the articulation. I have not seen the memoir itself, but in the 13th volume of the *Medico-Chirurgical Journal* there is an abstract of it, from which the following observations are taken:—In the first stage, the cellular tissue surrounding the tendons and ligaments is loaded with blood-vessels, thickened and infiltrated with a great quantity of a mucous or glutinous matter, which matter is principally deposited immediately around the

tendons and ligaments. In the hip, this coagulable lymph, or whatever else it may be, is principally seated at the lateral and posterior parts of the joint. The deep parts of the articulation have, as yet, experienced little change, save that the periosteum and synovial membrane are injected in parts, whilst the latter is altered in consistence, and adhering to the mass of lymph investing the ligaments on its outside.

In the second stage the vascular condition of the cellular tissue has disappeared, and the latter structure has become converted into a fibrous, lardaceous substance, intersected with white striæ, which, on examination, are found to be made up of enlarged vessels, mostly obliterated, and so thin in their coats as to resemble veins. This fibrous substance envelopes the ligaments, &c., but it can be readily peeled from them, leaving them in their natural condition, and proving that the original site of white-swelling is in the cellular texture. Some few points, again, are much more vascular, of a blackish red colour, and infiltrated with caseous and livid-looking matter.

Third stage. The principal vessels in the tumour are now obliterated;—the skin, cellular substance, &c., are more or less disorganised;—the bones, tendons, and ligaments, are enveloped in a caseous, lardaceous matter;—the synovial capsule is red and thickened, and its inner surface lined with a caseous matter. When sinuses exist, they ramify through the soft parts in

various directions, penetrating to, and denuding of periosteum the bones, or exposing the cartilages.

Mr. Wickham* has also described the disease of the cellular tissue in the region of the joints. "Two kinds of cases," says Mr. W., "are presented to us by disease of the cellular membrane; the one in which a single or more spots may have been the seat of the inflammation, having its origin from some injury which the part may have received, and pursuing a chronic course to the formation of small sacs of pus in those situations, which, perhaps, ulcerate through the synovial membrane. The second case is that in which the whole of the cellular membrane surrounding the articulation becomes inflamed, and ultimately envelopes the joint in one large abscess. The first case is the more common of the two; the latter the effect of a sudden attack of inflammation, and more active in its course."

SECTION IV. ON THE CAUSES.

MANY considerations prove that this is a constitutional disease, and that the affection of the hip-joint, and all its metastases, are the mere external demonstrations of a pathological condition in

* A Practical Treatise on Diseases of the Joints. By W. J. Wickham.

which extensive functions, not a limited locality, are involved.

That it is primarily a disease of the vital* or nutritive functions, is evident from this, that the mental or thinking functions are unaffected, and that the locomotive functions are involved only in proportion to the progress of the primary disease.

That, in the vital system, it is not absorption nor circulation that are deranged, but mainly secretion, appears from this, that the secreting system seems to be extensively affected.

I.—Debility of constitution is remarkably favourable to the occurrence of this disease; and as to ulceration of the cartilage in particular, it is manifest that it is a constitutional affection, from the circumstance that a disposition exists in some persons to take on this disease in several joints at the same time, without sufficient local exciting cause to bring it into action. Accordingly, both hip-joints may be affected at the same time, of which I have seen instances; and two cases or more of the disease may occur in the same family, of which I have seen several examples.

II.—The liver, the largest secreting organ, seems almost universally to be affected in this disease.

III.—The mesenteric and inguinal glands,

* The following arrangement by Walker is inserted to show the sense in which I use the word vital and other physiological terms.—(*See the next page.*)

NATURAL ARRANGEMENT OF ORGANS.

CLASS I. LOCOMOTIVE ORGANS.			CLASS II. VITAL ORGANS.		CLASS III. MENTAL ORGANS.			
<i>Order I.</i> Bones, or Organs of Support.	<i>Order II.</i> Ligaments, or Organs of Connection.	<i>Order III.</i> Muscles, or Organs of Motion.	<i>Order I.</i> Lymphatics, &c. or Organs of Absorption.		<i>Order I.</i> Eye, Ear, &c. or Organs of Sensation.	<i>Order II.</i> Cerebrum, or Organ of Perception, &c.		
			<i>Order II.</i> Arteries, &c. or Organs of Circulation.					
			<i>Organs of Digestion.</i>		<i>Veins.</i> <i>Organs of Respiration.</i>		<i>Order III.</i> Glands, &c. or Organs of Secretion.	
					<i>Arteries.</i> <i>Organs of Generation.</i>			

NATURAL ARRANGEMENT OF FUNCTIONS.

CLASS I. LOCOMOTIVE FUNCTIONS.			CLASS II. VITAL FUNCTIONS.		CLASS III. MENTAL FUNCTIONS.	
<i>Order I.</i> Function of Support.	<i>Order II.</i> Function of Connection.	<i>Order III.</i> Function of Motion.	<i>Order I.</i> Function of Absorption.	<i>Order II.</i> Function of Circulation.	<i>Order I.</i> Function of Sensation.	<i>Order II.</i> Function of Perception, &c.
			<i>Function of Digestion.</i>	<i>Passage of Blood to Lungs. Respiration. from Lungs.</i>	<i>Order III.</i> Function of Secretion.	<i>Order III.</i> Function of Volition.
			<i>Function of Digestion.</i>	<i>Passage of Blood to Lungs. Respiration. from Lungs.</i>		
				<i>Function of Generation.</i>		

NATURAL ARRANGEMENT OF DISEASES.

CLASS I. DISEASES OF THE LOCOMOTIVE FUNCTIONS.			CLASS II. DISEASES OF THE VITAL FUNCTIONS.		CLASS III. DISEASES OF THE MENTAL FUNCTIONS.	
<i>Order I.</i> Diseases of Support.	<i>Order II.</i> Diseases of Connection.	<i>Order III.</i> Diseases of Motion.	<i>Order I.</i> Diseases of Absorption.		<i>Order I.</i> Diseases of Sensation.	<i>Order II.</i> Diseases of Perception.
			<i>Order II.</i> Diseases of Circulation.			

which collectively form an immense secreting organ, are very frequently involved.

IV.—It is generally, if not always, associated with scrofula, an undoubted disease of secretion.

V.—Dropsy not unfrequently occurs in the last stage of hip disease. A patient of the name of Ford, who died in 1835 with that disease, had ascites; and another, admitted in 1836 into the Infirmary, in the last stage of the complaint, was also dropsical. In a case of disease of both hip-joints, in the Infirmary, in 1836, there was anasarcaous swelling of the whole lower extremities.

VI.—It is characterised by nothing so strikingly as the secretions that attend it, from the first puffing of the capsule, till those immense abscesses by which the hip is destroyed.

VII.—Its existence impedes no other secretion or excretion. The catamenia are usually regular during its continuance; and they continue so, unless the powers of life give way and death is likely to occur.

VIII.—It is impeded by greater secretions.—Hannah Coke, aged 30, a married woman, admitted into the Infirmary in 1836, says that she slipped down in the street, seven years ago, when pregnant; but suffered little or nothing from the fall until two months afterwards, immediately subsequent to her delivery. Pain then came on, extending from the hip to the knee. Two years

passed before any matter showed itself; and, during this time, the pain was so severe that she was obliged to rest the feet on a board, and sit in a chair leaning over pillows. At the end of two years, the pain began to diminish; she became pregnant; and she has been six times pregnant since that period. During pregnancy she is always better.

IX.—Every means of cure attended with any success, operates by promoting absorption, as iodine, &c. ?

Now, if this view be correct, what must be thought of the value of many of the topical remedies which we are in the habit of using on patients—I mean issues, setons, moxæ, &c. ?

These views, it will now be found, apply to, or are illustrated by, every circumstance connected with the various causes, or supposed causes, and conditions of the disease.

Under most of these circumstances, it will be observed, that not only are the secreting organs powerful and active, but the whole vital system is large; while the locomotive system is proportionally feeble, and becomes a sacrifice to the excess or derangement of the former.

It is on these principles that this disease is more prevalent in some countries than in others; as in England and Holland, of which the Saxon population is characterized by the magnitude of the trunk and of the vital organs, while the limbs

and locomotive system are small and feeble. In Holland, according to Camper, one person in twenty-eight, in his time, went lame.

The same principles apply to ages. In children, similar proportions and conditions of these systems prevail—the trunk is large; the limbs are short; and they are peculiarly subject to this complaint.

Hence it is that, even prior to birth, the organisation of the joints becomes deranged, and such changes are effected as to cause this form of disease.

Albers mentions three cases of a congenital affection of this kind. Morgagni* also observed the disease in an infant only a few months old. I have myself seen it at a very early period.

Mr. Anderson, surgeon, of Myddleton Square, requested me, some years ago, to see his child, then only a month old, who had a small circumscribed swelling over the right hip-joint, produced by the collection of fluid, and evidently confined within the capsular ligament. The swelling gradually increased; ulceration of the capsular ligament took place: and a large abscess formed on the outer side of the thigh. This was opened, and a considerable quantity of matter discharged. The child experienced great suffering, and was much emaciated; but, by evacuating the matter as it collected, and by the application of warm fomen-

* De Sedibus et Causis Morborum, Epist. lvi.

tations and poultices to the part, the child ultimately recovered, and is now able to walk.

Camper* most frequently met with this disease in children a year and a half old. Albers observed it generally between the third and twelfth year. Ford† remarks that it usually attacks young persons from their infancy to the fourteenth year.

My own observations convince me that the disease occurs in children more frequently than in infants.

Now, it is evident, that independent of the great condition already pointed out, the disproportion of the vital and locomotive systems, most of the exciting causes, as scrofula, &c., exist in children. The bones also, and especially the articulations, are more vascular and contain less earthy matter than in adults; and the consequence is, that external violence and all other causes act more easily upon them, and injure the joint. Children also fall more frequently than adults, because the centre of gravity lies much higher in them. Finally, children are more excitable than adults, and are therefore predisposed to all kinds of complaints.

Instances, however, are not wanting where this disease appears at a more advanced age. Ficker‡

* Kleine Schriften, i. B. 11 S. s. 3.

† Observations on the Disease of the Hip-joint, by Edward Ford, 1st edit. p. 3.

‡ Preisfrage, worin besteht eigentlich das Übel, das unter

saw it in a countryman, thirty-eight years old; and Albers saw it, in its worst form, in a man of forty-five. Palletta* and Kraak† relate cases where they saw the disease in men fifty years old.

I saw a patient who was fifty years of age, and who, two or three weeks prior to the attack, had experienced a severe fall on the joint. I have seen very many cases in manhood and old age.

It is evidently the enfeeblement of the locomotive system by old age, that again renders it liable to this disease.

It is on the same principles that females are perhaps most subject to this disease.

Van der Haar,‡ accordingly, considers the delicate organization of females, who approach near to children in this respect, the reason why one sees more lame persons among females than among males; and Morgagni explains the frequent occurrence of the disease, in woman, by the lodgment of the head of the thigh-bone more in the anterior part of the pelvis, in consequence of which the dislocation of the head of the bone can more easily take place. But as dislocation is now found to be less frequent than was formerly imagined, we have, in this, only his testimony to the frequency of the general disease in women.

dem sogenannten freywilligen Hinken der kinder bekannt ist?
Beantwortet von D. Wilhelm Anton Ficker de Wien, 1807.
4to. s. 92.

* *Adversaria Chirurgica Prima*. 4to. p. 28.

† *Richter's Chirurgische Bibliothek*. Gottingen, 1805. B. 8, st. 3. S. 489.

‡ *Uitgeg. Gen. en Heelk. Mengelst.* Amst. 1797. s. 15.

This, however, is a point on which authors are not united. Albers and Ficker entertain a different opinion; and, according to Rust's experience, males are more frequently attacked by the disease than females.

It appears, however, to be agreed, that the disease terminates more favourably in males than females; and this is doubtless owing to the less predominance of the vital, and the greater power of the locomotive, system.

It is evidently owing to the relative condition of these two systems, that scrofulous individuals are very frequently attacked with this form of disease. There are, accordingly, few medical men who have not observed this disease in scrofulous children, as well as in adults, who have previously suffered from scrofula, and who still possess a scrofulous tendency.

All kinds of scrofulous affections sometimes precede the hip disease, attacking one joint, and then another, until they settle in the hip-joint.

Mr. Lawrence, in his lectures, says, "Affections of the joints that have their origin in scrofulous disease of the bones, very frequently appear in more than one part of the body, the cause consisting in a diseased state of the constitution. Sometimes you have a succession of affections appearing in different parts of the body, one after the other. I attended for several years a young girl, the offspring of parents both of whom bore marks of a scrofulous constitution, and who, in

fact, both died comparatively young, of tubercular phthisis. A sister of hers also died young, of a disease of the lungs. This young girl had, in the first instance, obvious marks of a very delicate constitution. She was subject, in the winter, to chilblains; and, for a considerable period, the circulation was obviously very feeble, as was shown by affections of the extremity of the body. She then had an affection of the bones of one foot, particularly of the os calcis, which was denuded, and communicated externally by an abscess, but never produced any severe effect on the constitution. It was subsequently observed, that she stooped very considerably; and, on examination, there was found to be a deviation from the straight line of the body, at the lower part of the back and upper part of the groin. There could be no doubt of scrofulous disease in the vertebræ: this was further evidenced by depression of the head and neck between the shoulders. The affection did not cause any pain; and the treatment of the case throughout consisted merely of means calculated to strengthen the system, there being no counter-irritation or other treatment, as this would have been too powerful for the debilitated state of the frame. The affection of the spine seemed to pass off. She then, however, had disease of the hip-joint, and this was more formidable than the other affections: it proceeded to the formation of abscesses in the neighbourhood of the hip; large formation of matter took

place with repeated ulcerations; and she ultimately died hectic."

Ulceration of the cartilages happens more frequently in subjects partaking of a scrofulous habit of body than in other constitutions. The disease is not to be identified with scrofula; but it appears particularly in persons subject to glandular affections of a scrofulous character. A slight accident, it has been observed, in a habit predisposed to this disease, may excite it to action, when it otherwise might have remained dormant; and it may do this at periods of life when scrofulous action does not usually appear.

Gout, rheumatism, and syphilis, all of them diseases of secretion, not unfrequently give rise to this disease.

Gonorrhœa, equally a disease of secretion, sometimes gives rise to it. A gentleman, whilst taking copaiba for the cure of a gonorrhœa, owing to the discharge from the urethra, having suddenly stopped, was seized with a severe attack of the synovial membrane of the right hip-joint, from the effects of which he did not recover for some years.

After various other diseases of secretion, as small-pox, measles, scarlet-fever, various cutaneous affections, old sores too suddenly healed, it is acknowledged that this affection often comes on.

A boy at the age of eleven years was seized with the small-pox in the natural way. As soon as he rose from his bed, he felt great weakness in

his right thigh, and pain in the hip and in the knee-joint under the patella; the disease rapidly went through all its stages; and in July, 1833, he was admitted into the infirmary. Since that time the hip has remained free from any return of the disease; but he was re-admitted the following season, on account of scrofulous disease in some other part.

On the same principles, suppressed lochial or menstrual discharges, and the stoppage of the lacteal secretion, bring on the disease.

In many of these cases, the course of the disease is very rapid; and if the proper measures be not promptly applied, the patient runs the greatest risk of suppuration and destruction of the joint.

Other causes appear to operate more immediately by injuring or debilitating the locomotive system, in persons of ill-constituted vital system, with excessive or deranged secretions.

Frequently, the disease is produced by external violence; or, more correctly, the tendency to it existing in the secreting system, is thus called into action. There was in the infirmary, in 1838, a patient with dislocation of the left hip on the dorsum ilii, consequent on accident; the dislocation was reduced at the time, but recurred from a fall out of bed, since which it has remained unreduced. An abscess formed which afterwards healed.

It is observed that inflammation may be pro-

duced in the hip-joint by a violent strain; and that we can account for this, when we know that the muscles of the hip are attached to the fibrous capsule of the joint; so that there may be laceration of the tendons of these muscles, and of the fibrous capsule itself, a very probable cause of such inflammation.

On the same principle, after long walks, the disease of the hip-joint comes on.

Sir C. Bell observes, that, as in the acetabulum, there is one cavity within another, and a soft, fatty, vascular structure lodged in it, it is possible to propel the head of the bone directly and perpendicularly into the joint, so as to hurt the soft part, and to give rise to just so much local injury as will direct the constitutional disposition. On the fatty apparatus in the lesser cavity swelling, it becomes subject to the pressure and friction of the head of the femur, and this, he thinks, is often the commencement of diseased hip, rather than the twist, or bruise, which first calls the attention of the patient.

I may observe here that all the parts of the hip-joint have a peculiar character; they are low both in regard to vascular action, and in the scale of sensibility. The value of this is evident, seeing that there is no rest to this joint, and that every motion of the body is accompanied by movement of the head of the os femoris in the acetabulum; for even the slightest motion, however remote, causes less or greater change in the

centre of gravity of the body, and compels us to poise the trunk anew upon the hips. Were those parts more sensible we should be perpetually lame. Happily, there is sufficient sensibility to form an adequate guard against excessive motion of the joint, and little enough to permit the natural use of the limb—a nice adjustment of sensibility to function. The left hip-joint, which is feebler than the right, is observed to be more frequently affected.

The continued application of cold to the part, a striking cause of enfeeblement, is a common cause of this disease. I attended a child six years old, who had experienced two attacks of the disease within nine months, each attack having been brought on by sitting on the cold steps. It often originates from damp beds, from working in water, or in wet grounds, or being casually much exposed to wet, as among washer-women and brewers' servants, and others liable to have their clothes often wet. But lying on the damp ground, especially when the body is heated, is a very common cause.

Thus I have endeavoured to simplify the view of the causes of this disease—country, age, sex, &c.; for it is evident, on examination, that all of these operate by enfeebling the most important joints of the body, in persons in whom the vital, and especially the secreting, system is deranged. Accident or external injury does so directly; the damper climates of England and Holland are

obviously favourable to the vital and unfavourable to the locomotive system—hence great bodies and small limbs; childhood and womanhood, are distinguished by an active vital, and feeble locomotive, system, &c., &c.; and if the locomotive system is enfeebled, it is not wonderful that its greatest joint should be so.

Previous writers on this subject have ventured to suppose, that, when this disease appears in scrofulous persons, it is at least a consequence of constitutional affection. I have endeavoured to show that it is always, not a consequence, but a mere external symptom of constitutional disease.

SECTION V. ON THE TREATMENT.

IN the treatment of the disease of the hip-joint, careful reference must be had to the state of the constitution. It is essential to distinguish between those cases which occur in strong subjects, and those which take place in persons of a scrofulous habit. In strong persons, or those of a rheumatic diathesis, or where cold, external violence, or gonorrhœa has given rise to the disease, remedies of a different character must be employed than in persons of a weak or delicate constitution, in whom the local mischief is a mere sign of constitutional disturbance.

In the former class, rest must be prescribed, for every motion of the body gives pain; blood must be taken, by leeches or cupping, from the

region of the joint ; and the quantity must be regulated by the amount of pain and the strength of the patient. Internally, calomel and opium should be given so as to affect the mouth.

Sometimes, however, from a peculiar state of constitution, mercury cannot be exhibited internally, or, if it is given, a most distressing train of symptoms occur, such as pain or uneasiness about the epigastrium, tenesmus, frequent but scanty mucous stools, more or less tinged with blood. The evacuations are at first more copious, and relieve for a time the irritation of the bowels ; but, as they become more scanty, and more frequently repeated, the irritation and general uneasiness are increased. Opium exhibited internally relieves at first, but soon loses its effect. An opiate injection is most to be depended on : about fifteen drops of the liquor opii sedativus may be thrown up the rectum in half a pint of gruel, or thin starch, with advantage. As the bloody stools seem to indicate that there has taken place some slight lesion of the mucous membrane of the intestines, which is aggravated whenever the mercury comes in contact with it, this medicine must be immediately left off.

If, however, the mercurial action can be borne, it is generally sufficient, if early set up, to arrest the complaint ; but there are some patients in whom the disposition to the disease is so strong, after it has once come on, that it returns the moment the mercurial action is discontinued. In

such cases, mild mercurials, as hydrarg : c. cretâ, with Dover's powder, or the Plummer's pill, may be given in alterative doses, and be continued for some time; for it will not do, on every fresh attack, to have recourse to strong mercurial courses, which, though they relieve for the time, increase the tendency to the attack. In combination with this alterative course, sarsaparilla, in various forms, should be administered.

If mercury cannot be borne, colchicum should be administered, combined with some alkaline aperient, at regular and stated periods.*

When the intensity of the inflammation has been in some degree subdued, a blister may be applied over the region of the hip; and, if necessary, several blisters may be employed in succession. I have always adopted this plan in preference to keeping one open.

The diet of the patient is, in this stage, a point of the highest importance. It should be light, little animal food should be allowed, and spirits and all fermented liquors carefully prohibited. The patient will experience great relief from the hot bath, in this stage, provided there be no great

* The following is the form in which I usually give the colchicum in this stage:—

R Aquæ puræ, $\bar{3}$ vss.
 Vin : Semin : Colchici $\bar{3}$ ij.
 Syrupi Simpl: $\bar{3}$ ij.
 Magnes : Sulph : $\bar{3}$ xij.
 „ Carbon, $\bar{3}$ ij.
 Sodæ Sesqui-carb : $\bar{3}$ j.

Two table spoonsful to be taken every four hours.

motion or exertion used at the time of taking it; and, if the hot bath cannot be taken, warm fomentations should be frequently applied to the part.

When the symptoms of active inflammation have subsided, a certain degree of stiffness of the joint, an uneasiness in the hip or knee, and an inability to walk far, often remain. In this state, counter irritation, by means of stimulating liniments, composed of the *linim: camph: c.*, with the *liquor ammoniæ*, or the *linim: saponis*, with *tinct: lyttæ*, should be employed. The tartar emetic ointment, or the *ung: hydr: fort:* with iodine and tartar emetic, may also be used with advantage. In this chronic state the following plan, recommended by Mr. Scott,* is extremely serviceable:—the surface of the joint is to be carefully cleansed by a sponge, soft brown soap, and warm water, and then thoroughly dried. Next, this surface is to be rubbed by a sponge soaked in camphorated spirit of wine, and this is continued a minute or two, until it begins to feel warm, smarts somewhat, and looks red. It is now covered with a soft cerate, made with equal parts of the *ceratum saponis*, and the *unguentum hydrargyri fortius cum camphorâ*. This is thickly spread on large square pieces of lint, and applied entirely round the joint. Over this, to the same extent, the limb is to be uniformly supported by strips of calico, spread with the emplas-

* On the Treatment of Chronic Inflammation, p. 133.

trum plumbi of the London Pharmacopœia. These strips are about one inch and a half broad, and vary in length: some are fifteen inches; others, a foot; others, half these two lengths; and the shorter or longer are selected, according to the size of the part round which they are to be applied. This is the only difficult part of the process. This adhesive bandage ought to be so applied as to preclude the motion of the joint, prevent the feeble coats of the blood-vessels from being distended by the gravitation of their contents in the erect posture, and thereby promote their contraction. Over this adhesive bandage, thus applied, comes an additional covering of emplastrum saponis, spread on thick leather, and cut into four broad pieces, one for the front, the other for the back, the two others for the sides of the joint. Lastly, the whole is secured by means of a calico bandage, which is put on very gently, and rather for the purpose of securing the plaster, and giving greater thickness and security to the whole than for the purpose of compressing the joint. This is an important point, as otherwise an application, which almost invariably affords security and ease, may occasion pain, with all its attendant mischief.

The principle, Mr. Wickham judiciously observes, on which the plan of treatment seems to act, is to give support to the weakened and congested vessels, preventing the arteries from supplying the diseased part with more blood than is

sufficient for its healthy condition, and enabling the veins at the same time to empty themselves of that blood which has been delayed in them, and to forward it more quickly to the source of circulation, the heart. The absorbents are also aroused to activity by the stimulating power of the mercurial and camphor ointment. The accomplishment of these objects should be had in view in the employment of this remedy, to give the probability of successful issue to any case.

In the next class of patients, those in whom the disease may truly be said to have a constitutional origin, a very different plan of treatment must be adopted. In fact, the first stage of the complaint often exists some time before it is discovered. In every case of this kind, an accurate examination should be made of the state of the viscera, for one of the grand secreting organs will almost always be found in fault, and, unless this be rectified, all local remedies will be unavailing. The organ most frequently found deranged is the liver; and, at the infirmary, leeches and local means are applied to this organ oftener than to the affected joint.* We must carefully avoid the

* For the following note I am indebted to my friend Mr. Childs, who was house-surgeon at the infirmary in 1838:—

“Bleeding by leeches is the first thing done, and not more than six or eight are applied to an adult, and about four to those under that age; they are put on just in the interspace where the ribs divide. On the day following the application of leeches there is invariably an amelioration of the symptoms. The cases in which the most marked benefit is observed are those of chronic

adoption of all such local means as are calculated to lessen the power of the vital system. In this class, even in the early stages, the taking of blood

ulceration. Sores which the day before presented the worst and most ill-conditioned aspect, and greatest indisposition to the healing process, assume in a few days a healthy appearance. How or in what manner so small a quantity of blood thus abstracted acts in producing such decided effects, it is difficult to say. In speaking of these sores I may as well here observe that I have seen them situated more frequently about the sternum, elbow, and knee joints, than on any other part of the body. I have witnessed abscesses which, on a day or so previous to the institution of this treatment, had been on the eve of bursting, become diminished in size, the inflammatory blush subside, and the skin assume a pallid and wrinkled appearance.

“On the day following the application of leeches, a blister of a triangular shape is applied over the region of the liver; alteratives are given, such, for instance, as Pil: Hyd: and Extract: Col: Co: or Iod: Hyd: $\frac{1}{8}$ or $\frac{1}{4}$ of a grain at night, and the Deeoct: Sarsæ Co: with Potass Hydriod: gr. ij. to gr. iij. for a dose. For children the best alterative is Hydrarg: c. Cretâ, with the sarsaparilla daily; however it is absolutely requisite not to push the mercurial preparation too far, for by so doing the local affections are always rendered worse. In addition, it is an invariable rule to regulate the bowels and keep the colon from becoming overloaded; to effect this purpose, enemata of warm water and oil twice or thrice a-week are employed, as the case may require. It is astonishing how the symptoms are frequently aggravated from the colon being overloaded. From torpor of the colon in Coxalgia I have seen the patient endure the most agonizing pains, which were immediately relieved by the action of a simple injection; the same holds good in diseases of the vertebræ.

“With respect to the diet, during the time they are under the treatment, I have only to observe that care is taken to avoid all things likely to disorder the stomach and bowels, such, for instance, as fruit and much vegetable, and unless, in some aggravated cases, or cases approaching nearer the acute than chronic form of disease, they all enjoy the ordinary allowance of both. With the utmost care it is scarcely possible to regulate their living as it ought; the patients constantly stuff themselves with fruit, corn, and all such indigestible matters, by which they disorder

is seldom advisable; and it can never be carried so far as in other subjects.

The patient must have all the advantages that their stomachs and aggravate grievously their local complaint, and nothing is more usual in going round the infirmary to find sores, which on the day before were in a healthy state, thrown entirely back from this cause alone.

“As to the exercise, there are no fixed rules, and each patient is allowed to take as much as he finds he can bear with impunity. There is a green in front of the house, on which all the patients walk and amuse themselves.

“As to bathing, on the patient's first admission, if the case allows it, he commences with the warm bath, about 98°, not remaining in the bath longer than five minutes. After continuing these about a fortnight, he is turned over to the cold (but not on any account whilst under the hepatic treatment; here the warm bath alone is admissible).

“A word or two with regard to sea-bathing. There is a certain description of sores in which salt-water bathing is inadmissible, and over which the salt produces a decidedly baneful effect, retarding the healing process, and setting up such a degree of local irritation as proves highly injurious to the patient's health in general. I could instance some of those I have had an opportunity of witnessing, and which approach nearer the description of an irritable ulcer than anything else, situated especially about the elbow and ankle-joints. I have witnessed many of the out-patients thus affected being compelled to suspend the use of the baths, and employ local means alone; and in all ulcers of a similar description, salt water invariably does more harm than good. Many of the cutaneous diseases salt water aggravates. In lepra the irritation is so great as to be scarcely endurable, and not only is this the case, but I never found the symptoms in the least degree ameliorated, but otherwise. With these cases vapour baths alone seem to be productive of benefit, and the relief afforded by them is sometimes very marked. With regard to the Douche baths, a very similar plan is pursued, commencing with the warm Douche, and proceeding from that to the cold. These are used for local affections, unattended by ulceration or much inflammatory action, such, for instance, as contracted limbs, enlarged and weakened state of the joints, paralytic state of the extremities, curvatures of the spine, &c. &c. I should here remark that the kind of ulceration to which sea-bathing

can be derived from residence in pure air; for patients in whom a variety of local means have been tried without effect, as long as they remained in London, or other large cities, and in whom the disease has proceeded from bad to worse, will get well without the employment of local means, or at least with very few, on removal to the sea-side.

The following is one, amongst many cases, which might be given in illustration of this truth:—Rosetta Hunott, æt. two years and a half, of delicate habit and fair complexion, was brought to me by the mother for an affection of the right hip-joint. The mother told me that the child had walked farther than usual about a week before, since which it had gone lame. On examination, there was no alteration in the length of the limbs, and no pain on pressure; but when the child attempted to walk, it limped considerably, and propelled the affected limb as if the knee-joint were straight. The child appeared very delicate, and the tongue was covered with a white fur. I ordered the occasional application of a blister to the joint, and small doses of hyd: c. cret: and pulv: rhæi every other night, and the recumbent posture for the child. After the use

does harm is that most dependant on a carious condition of the bones.

“As regards surgical treatment, the local applications are principally composed of iodine, the simple ointment is a weak combination of iodine with hogs'-lard; they are named according to their relative degrees of intensity, viz., No. 1, 2, 3, and so on.”

of these means during eight weeks, the affection of the joint was not relieved, and the child's general health was considerably deranged. Under these circumstances, I strongly advised the mother to take the child to the infirmary at Margate, and my request was immediately complied with. Warm bathing, once in two days at first, and afterwards once in three days, was employed for six weeks; the same internal remedies were used as had been given in town; but leeches were applied to the region of the liver in consequence of hepatic derangement; and the child was ordered to be taken out in the open air as much as possible. By these means the affection of the hip-joint was completely removed, and the child's general health restored at the end of six weeks. The child is now quite well.

Warm bathing is found to be very serviceable. Indeed in no class of patients, and in no stage of this particular disease, are sea air and warm salt-water bathing so beneficial as here. Warm or tepid bathing agrees with nearly every patient.

Russell* says that, "in estimating the comparative merit of cold bathing and warm bathing, in the cure of scrofulous complaints, my own experience would lead me to bestow much more commendation on the effects of warm bathing. I should not even be inclined to cir-

* A Treatise on Scrofula. By James Russell, page 52.

cumscribe the practice to cases of emaciation and debility, since, from observation, I am fully satisfied with regard to the beneficial effects of the warm bath to patients of plethoric constitutions, who were much affected with swelled scrofulous glands. Several of those instances occurred in young women, about the prime of life, who were in all respects healthy and vigorous, abating the swellings of the glands, and those symptoms of distress which were connected with fulness of blood.

“The sensation of the warm bath is extremely grateful to most patients, and the practice is universally safe. It may be employed at all seasons of the year, and in all weathers, without danger or inconvenience, the risk of suffering from exposure to cold immediately after immersion in the warm bath having been much magnified by prejudice. There is not even any good reason to believe in the existence of such a risk. The precautions, however, which are employed to avert it are perfectly innocent, and, provided they do not impose any unnecessary and incommoding restraints upon the practice, may be encouraged, so far as to relieve the patient’s mind from uneasiness and groundless apprehensions.

“From twelve to twenty minutes is in general the time recommended for immersion, at the commencement of a course of warm bathing, with a temperature of water varying from 90 to 100

degrees of Fahrenheit's thermometer, according to the feeling of the patient. Persons much accustomed to the practice of warm bathing in general remain longer in the bath at a time, and use a higher temperature of heat.

“It requires many weeks, and sometimes several months, to ascertain the full effects of warm bathing in relieving scrofulous complaints; but as the practice is not attended with any inconvenience, nor followed by any bad consequence, there can be no reason to intermit the course till the trial is completely satisfactory. And I am convinced that the practice of warm bathing, in cases of scrofula, will be more universally adopted after the knowledge of its beneficial effects is more widely diffused.”

The sea side, however, is not beneficial in cold weather. The best time is from the beginning of May to the end of October; but, if the autumn sets in cold earlier than usual, the patient should return before this.

Dr. Brown, who was acting physician to the infirmary thirty years, told me that, when the cold sets in, the strumous sores assume, in all cases, a very unhealthy, and in some cases a sloughy, appearance.

The period at which patients affected with disease of the hip-joint derive most benefit from going to the sea side is, either at the commencement of the disease, before much inflammatory action has begun, or towards the end of the third

stage, when the abscesses are discharging, and the health is impaired by the long continuance of the complaint. On the contrary, during the formation of matter, and before the abscess begins to discharge, the patient will not derive much benefit from the change.

The plan adopted at the infirmary is as follows :—For the first two or three days after the patient's admission, warm bathing only is employed, in order that the constitution may recover the effect of the journey, and adapt itself to the atmospheric change. The patient commences with the warm salt-water bath, about three times a-week, at a temperature of 96 degrees, and is directed to remain in it from fifteen to twenty minutes each time. Afterwards the tepid bath is used ; and then, dependent on the state of the weather and the health of the patient, the cold bath is employed, one dip only in the sea being allowed each time. The time selected for bathing is in the morning. The cold or warm Douche bath is often used in this stage of the complaint, and with very good effect.

There are some cases of disease of the hip-joint complicated with that delicate state of the lungs which imperiously forbids us to employ cold sea-bathing, or even resorting to the sea side, but these are exceptions from the general rule. Scrofulous patients, especially, should not remain longer than four, or at most five, months of the year at the sea side.

In this class of patients rest should not be so strictly prescribed as to endanger the health of the patient. To obviate, in some degree, the ill consequences of want of exercise, the patient should be taken as much as possible into the open air, which acts as a stimulus to the vital powers ; and gentle exercise, provided pain in the joint does not follow, may be allowed. The difficulty, in these cases, is to know at what precise period of the disease does more than increased synovial secretion take place, and the irritation which attends it ; and at what period does organic change or injury of the synovial membrane supervene. In fact I firmly believe that the doctrine of rest is carried to too great an extent, and that modified exercise is of vast importance in this disease. Lugol seems to entertain the same opinion. " I may venture," says Dr. L.,* " to solicit the notice of practitioners to the results of my general experience, in which I never observed any accident or inconvenience to result from this innovation (the employment of exercise). Of seventy-six scrofulous patients at present in my wards, there are thirty-two who, if treated according to the too general custom, would be restricted to absolute confinement to bed. Under my direction, they walk daily in the hospital promenade, in the same manner as the different individuals afflicted with other forms of the malady.

* On Scrofula, p. 148 ; translated by W. B. O'Shaughnessy, M.D.

“ The study of scrofula, as regards its causes and diagnosis, denotes that this disease has, for its general character, an original weakness, which arrests the development of organs, but which renders them subsequently subject to a sudden and exaggerated increase. Rest has ever been regarded as a debilitating agent; it is the ordinary associate of all antiphlogistic systems of treatment. The most vigorous and robust constitution would inevitably be weakened, and brought to a state of etiolation by long-continued repose. If rest thus debilitates the vigorous, still more should an invalid, of primary weak constitution, be enfeebled by its operation, and his malady proportionately increased. But the matter is not one of argument alone; visit those patients confined to bed for six months, and on a debilitating regimen; they are pale, emaciated, weak, and depressed. I admit that the motion of a diseased joint is attended with some inconvenience, but the advantages derived from it are great beyond all proportion. In fine, for three years that I have followed this method, I have never been induced to change it, or even modify it, but for a transitory period in some unusual cases.”

Above all, attention must be paid to the secretions and excretions: mild mercurial purgatives should be given once in two or three days. I begin very early with the hydriodate of potass: of a solution of the medicine containing a drachm

to an ounce of water, four or five minims may be given to a young child three times a day; and the best time for its exhibition is soon after a meal. According to the age, the dose may be increased. The diet should be light and plain, but nutritious; animal food should not be prohibited, but wines, spirits, and all fermented liquors should be interdicted.

Mild purgatives, moderate exercise in the open air, sea bathing, the use of the hydriodate of potass, and light nutritious diet are, in this class of patients, the remedies to be relied on in this stage of the disease.

In this stage a splint may be applied with advantage to the joint, the most ready of application is one composed of cows' hide or buffaloes' hide, prepared without oil or grease, and which on immersion into hot water, becomes soft, and may be moulded to the shape of the joint. I have also applied the splint or support after the plan recommended by Mr. John Lawrence,* of Brighton. Lint, wetted with cold water, is first placed over the joint. After the application of the lint, mix together white of egg and flour, so that it should be about the consistence of cream. Take strips of bandage and wet them with this mixture, and then place them horizontally around the joint. After applying these longitudinal slips, pursue the same plan with other strips, only placing them transversely. These layers are to be applied alter-

* *Lancet*, vol. i. 1838-9, p. 833.

nately until sufficient thickness is acquired. Over this application is applied a common roller, wetted with a solution of starch.

SECOND STAGE.—If the disease goes into this stage, the state of the patient becomes very critical, and the chance of a successful issue extremely doubtful. The striking difference which existed in the two states of constitution alluded to before is not always so apparent here, and the originally strong and feeble often present the same appearance. In the stronger subject, however, the pain is usually more severe; and, in such case, if there be much fever and constitutional irritation, the antiphlogistic plan should be resorted to; saline and antimonial medicines, combined with purgatives, should be given; and low diet and perfect rest strictly enforced. If the pain continue very severe under this treatment, even local abstraction of blood may be used, mercury with opium administered, and mercurial frictions, with iodine, employed. Should these means fail, a blister may be applied, as in the former stage, from time to time, over the posterior region of the hip.

It is in this stage that the employment of blisters, issues, setons, and moxæ is resorted to, even by those who disapprove of these means in strumous constitutions. Sir B. Brodie says, “Although I do not recommend the employment of blisters and caustic issues in other cases of

disease of the hip-joint, yet I do recommend them here. You may apply a blister to the nates, or to the groin, or you may make a caustic issue behind the trochanter large enough to hold twelve or fifteen peas. Usually, however, I keep the issue open, not by peas, but by rubbing the surface of it about once in a week with the caustic potass, dressing it in the mean time with the savine cerate."

The limb must here be kept at rest, and this can be accomplished by leather splints, plasters, and bandages, or by the invalid bedstead.

In weak and strumous subjects, the greatest attention must be paid to the state of the constitution; slight mercurial alteratives, with various forms of sarsaparilla* should be administered; or, if the power of the digestive organs be impaired, some bitter infusion with the alkalies should be administered. The use of hydriodate of potass will be found very serviceable in this

* R. Radicis sarsaparillæ Jamaicensis concisæ, ʒ iv.

Glycyrrhizæ, ʒ ss.

Aquæ calcis, Oij.

Macera per horas viginti quatuor in vase vitreo optime operculato, et in loco frigido et obscuro: dein cola in usum. Sumat hujusce infusi dimidium partitis vicibus quotidie.

This is the form recommended by Dr. O'Beirne.

The following is also a good formula for the preparation:—

R. Radicis sarsaparillæ Jamaicensis contusæ et concisæ, ʒ ij.

Radicis glycyrrhizæ, ʒ iv.

Liquoris potassæ, ʒ iiss.

Aquæ ferventis, ʒ xvij.

Macera per horas viginti quatuor vase clauso sine igne, dein cola. Sumatur 4ta pars bis vel ter in die.

stage, in combination with the sarsaparilla, and the following is a good mode of administering it.

R. Decoct : sars : eomp : $\bar{3}$ xv.
 K : Calumb : $\bar{3}$ j.
 Hydriod : potass : gr. xv.
 Iodini, gr. iss.
 Extraet : sarsæ, 3 iij.

For an adult, two or three table spoonsful thrice a-day soon after a meal.

But of all remedies, iron usually agrees best with the patient, and the best form of exhibiting it is the steel wine of the old Pharmacopœia. To children of three or four years of age a drachm may be given daily, and according to the age the dose may be increased. If the patient be rendered hot and feverish by the use of this medicine, it must be discontinued for a time, and resumed when these symptoms have subsided. This medicine must be given, with these occasional interruptions, for a long time. All who have had much experience in the use of this remedy bear testimony to its efficacy. Russell* observes, "Iron is the only metallic substance in whose safety and efficacy I am inclined to repose much confidence. It is not, indeed, so popular a remedy as cinchona, but, in my opinion, it acts more speedily and more powerfully on the constitution; at least, I have met with several instances in which the patient has experienced very sensible benefit in the course of a few days, owing apparently to the good effects of chalybeate medicines.

* Op. cit. page 77.

Iron is, besides, less liable than cinchona to oppress the stomach with indigestion, or to produce accumulation in the bowels; and upon these accounts is a more unexceptionable medicine. The virtues of iron are supposed to be more peculiarly appropriated to the purpose of invigorating the system, when oppressed with general langour, than for the cure of any particular symptom. The dose may be augmented so long as the stomach can bear the quantity without oppression, and the course may be continued without interruption for some weeks."

The iodide of iron is an excellent medicine in these cases, and it may be given in combination with steel wine.

Gentle exercise in the open air in fine weather, with the aid of crutches, should be allowed, and occasional warm baths; though I have less confidence in the salt-water bathing in this than the other two stages. As to the employment of issues, &c., in these weakened persons, they are positively injurious, by still further debilitating the constitution, and by the extension of the irritation (which not unfrequently happens) from the local drain to the affected joint, thereby increasing its disease. I think that the officers of the infirmary will bear me out in saying, that they have never seen any good effected by these means in weak scrofulous persons in this stage, and that these remedies have long since been exploded from the practice of the institution.

The diet requires great attention. It should be such in quantity and quality as the stomach can readily digest. It should consist of plain animal food, with well-boiled vegetables; but wine, spirits, and malt liquors should be prohibited.

THIRD STAGE.—During this stage, the treatment, in strong subjects and scrofulous ones, is nearly the same. As caries of the bony structures is taking place, and the formation of matter is to be expected, the limb is to be kept at perfect rest, and its position is a point of great importance.

The patient is generally inclined to lie on the side opposite to that which is diseased.

In explanation of this, it is properly observed, that the *psoas magnus* and *iliacus internus* come down over part of the pelvis, run in front of the joint, and are closely connected with the accessory and capsular ligaments. Hence, in order to relieve the pain in inflammation of the joint, there must be a relaxation of these muscles, which implies a certain position of the person, whether standing upright or lying in bed. On the contrary, the *glutæi* come down from the back of the pelvis and cover the hip, and their action would be to propel the head of the bone into the inflamed cavity. Hence the patient adopts that position of the pelvis and thigh which tends to counteract this pressure, and to throw the head of the femur out from the inflamed cavity.

This position necessarily distorts the pelvis, increases the disposition to a lateral curvature of the spine, and, in those cases in which the round ligament is destroyed, facilitates the escape of the head of the femur from the acetabulum, and the production of dislocation. Something may be done towards preventing this last effect (now known to be of less frequent occurrence), by interposing a pillow, or thick cushion, between the knees; and it is difficult to do more than this after the patient has already been lying on his side for a considerable time.

The following contrivance will be found very useful in cases of diseased hip:—A double inclined plane should be formed, by joining two portions of wood together in such a manner that, when the child's hams are made to correspond with the angle of junction, his legs and feet should extend down one plane, and there be confined to the foot-boards by rollers, while his thighs and buttocks extend down the other. The foot-boards will also have the beneficial effect of removing the weight of the bed-clothes from the feet, which often causes much suffering from the strain it produces on the affected joint. This object will be further assisted by having a proper bed-cradle. At the extremity of the plane for the thighs, opposite the anus, a small opening should be made, to admit the passage of the fæces. The whole trunk of the child should lie quite hori-

zontally on the bed ; for, if propped up, or suffered to move, the ends of the bones are rubbed upon each other, which cannot be as long as he maintains the perfectly horizontal posture. To facilitate the placing a bed-pan under the aperture in the plane, the flock of the bedding for some distance around should be removed, and thus a space quite ample enough to place a vessel under the plane is obtained, rendering it quite unnecessary, on the part of the nurse, to raise the frame-work. By this means absolute and continued rest may be obtained : the parts may be kept in the most favourable and comfortable position, and the most powerful muscles become completely relaxed.

This attention to position will not be difficult in the earlier part of this stage ; but in the latter part, if there be much local suffering, it will be found impracticable to fix the limb in any one position ; the pelvis is tilted, the spine becomes distorted, and the body is also bent, making an obtuse angle with the hip. The diseased limb is usually bent, and rests on the opposite one ; and attempts to get the limb straight are attended with so much pain, that it is better to wait until the local and constitutional irritation have in some degree subsided before any attempt of this kind be renewed.

The prone position will be sometimes found peculiarly adapted to the last stage of hip-disease,

when ulceration of the skin surrounding the joint has commenced ; it will afford us a ready means for removing our dressings, as often as may be conducive to the comfort of the patient, and, by relieving the parts from pressure, tend materially to check the progress of ulceration.

A couch should be constructed in such a manner that a slight angle may be formed corresponding with the bend at the hips, the chest inclining on an horizontal surface, whilst the legs and lower portion of the trunk lie on an inclined plane. This being supplied with a mattress covered with Mackintosh, the patient may remain on it night and day, without suffering the slightest inconvenience. The construction of the couch will tend to prevent the contraction of the thigh, consequent on the practice of lying with the affected limb drawn up and crossed over its fellow, and which materially assists in aggravating the deformity which ensues.

Should the disease be connected with lumbar abscess, or caries of the vertebræ, the advantage of this position will be still more apparent, affording a ready means of escape for the dark ill-conditioned pus so characteristic of these diseases.

When matter is first detected, every effort should be made to promote its absorption. With this view the use of iodine, both externally and internally, will be found beneficial. The following is a good form for its external application :—

Of a solution consisting of an ounce of water, twelve to twenty-four grains of iodine, and two scruples of hydriodate of potass, a little should be applied, by means of a camel-hair brush, every day, to the region of the joint. This practice should be continued for six weeks, or two months, if required ; occasionally suspending the application when the skin is very irritable. Another good form is—a drachm of the hydriodate of potass to an ounce of spermaceti ointment, of which an eighth part may be rubbed over the joint every night.

If, in spite of all our efforts, matter continues to form, and the formation is attended with great pain, it is better to suspend the local application of the iodine ; to have recourse to emollient applications, as linseed-meal poultices and fomentations ; and to the use of opium or morphia, to allay the pain.

The matter usually is first felt over the posterior part of the joint, and then descends to the outer side of the thigh. This is the most common situation of the abscess ; but there is great variation in this respect, and in the course which the matter takes. Abscesses are sometimes found in front of the joint, on the inside of the thigh, or on the back part ; and in one case, admitted into the infirmary this season, the openings of the abscess were situated along the crista of the ilium, as well as at the outer part of

the thigh. If moxæ, setons, or issues have been employed, the abscess frequently opens on the spot where they have been applied.

The period at which the abscess should be opened is a point on which very opposite opinions are held. Ford was very adverse to the opening of abscesses near the joint, and, at page 87, says, "Who has not seen the fatal consequences of opening abscesses of joints, and the quick transition of strumous indisposition of bone, cartilage, or ligament, from a curable to an incurable caries?"

Sir A. Cooper observes that, "with respect to the treatment of abscesses, it is right, in all diseases of joints, and especially in diseases of the hip-joint, to postpone the opening of them as long as you can. Unless the abscess is exceedingly large, it is best not to open it at all. The reason of this is, that, if you open the abscess early, you expose the cavity of the joint to irritation; whereas, if you delay opening it, you suffer the abscess to make its passage to a considerable distance from the joint, so that opening it will not be liable to excite much irritation in the cavity of the joint. The irritation will be very slight if you delay the opening; but if you make it early, the effect will be just the same as if you were to make an incision into the joint. Give time for Nature to perform her task, and to fill the joint itself with adhesive matter, as the abscess extends down the limb to a great distance from the joint. I have made up my mind most de-

cidedly upon this point, having again and again had an opportunity of contrasting both modes of practice.”*

Moreover, if an opening is made early, the matter will probably gravitate below the opening, and thus a second opening will be rendered necessary.

Generally speaking, perhaps, opening of the abscess may be delayed until the skin is about to give way at a particular spot; and then a puncture may be made at that spot, leaving the evacuation of the matter to itself, and using no efforts to empty it.

In strumous habits, after the abscess has been opened, the wound enlarges, and the skin usually ulcerates in several places. These ulcerations are with difficulty healed, and, even when that occurs, they soon break out again, or similar ulcerations occur in the neighbourhood.

The best application to the ulcerated openings of the abscesses, and that used at the infirmary, is tow or charpie, soddened in a solution of hydriodate of potass and iodine. These are to be changed every day, or oftener, if the discharge is very copious. The appearance of the sores, from the use of this application, is generally very healthy.

Sometimes, however, the constitution is affected by the absorption of the iodine, or the sores take on an indolent, ash-coloured, glossy appearance;

* Lancet, vol. i.

and, in either of these cases, some stimulating wash, as that of the nitrate of silver, or sulphate of copper, had better be substituted, and some mild ointment applied to the sore. Salt water was formerly applied to the sores at the infirmary, and usually agreed very well.

Iodine has been very extensively used, for some years past, at the infirmary; and the formulæ*

*The following formulæ are taken from Lugol:—The following solution is graduated in three different proportions, so that the iodine may be given internally in the progressive dose of half a grain, three-fourths of a grain, or four-fifths of a grain daily:

IODURETED MINERAL WATER.

	No. 1.	No. 2.	No. 3.
R. Iodine.	gr. $\frac{3}{4}$	gr. j.	gr. $j\frac{1}{2}$
Hydriodate of potash	gr. jss.	gr. ij.	gr. ijss.
Distilled water . .	$\bar{3}$ viij.	$\bar{3}$ viij.	$\bar{3}$ viij.

This solution is perfectly transparent, of a beautiful orange colour, and keeps for a considerable time. Children drink it readily when mixed with a little sugar, but this addition should only be made at the moment of the administration of the medicine, as, in the course of a few hours after sugar is added, decomposition takes place, the liquid becomes colourless, and its activity is partly destroyed. I commence the internal treatment with half a grain of iodine; for this proportion I prescribe two-thirds of the mineral water, No. 1. In the second fortnight I give the entire of this number, that is, three-fourths of a grain daily, varying the dose within narrow limits according to the peculiarities of the case. During the fourth fortnight, or in the beginning of the fifth, I give a grain daily, and usually I continue this quantity to the end of the treatment. In some cases I have prescribed one grain and a quarter; still more rarely I have increased the dose to a grain and a half, but I have never gone beyond this quantity daily.

Another and advantageous form of preparing this mineral water on a larger scale is, by first making a concentrated solution of iodine in hydriodate of potash, and then diluting it with a sufficient proportion of water. Thus:—R Iodine.

employed are those recommended by Lugol, varying the strength according to circumstances. Latterly, the use of this remedy has been more

R. Iodine. ℥ j.
 Hydriodate of potash ℥ ij.
 Distilled water . . . 3 vij.

This solution contains one twenty-fourth of iodine; poured into sixteen pounds of distilled water, it forms thirty-two bottles of eight ounces of the mineral water, No. 1. It is easy to understand that, by diminishing the distilled water one-fourth, we compose No. 2; and by using three-fifths of the quantity of water, we obtain No. 3.

Again, the concentrated solution now used serves for the administration of the remedy in drops once or twice daily, a mode of prescribing I frequently follow in my private practice. I commence by six drops given in the morning, fasting, and six in the afternoon, an hour before dinner, in half a glass of water flavoured with sugar. Every week the daily dose is increased by two drops, until it shall have reached thirty, or even thirty-six drops daily.

For children under seven years old I would recommend two drops twice daily for the commencement, to be increased gradually to five drops twice a-day, morning and evening.

From seven to fourteen years of age I seldom order more than sixteen drops daily; I should not deem it prudent to exceed that quantity.

I cannot point out more particularly the graduation of the doses according to the age of the patients. The ordinary laws of therapeutics must guide us in this respect. It will not be forgotten that childhood, youth, and adolescence are severally marked by different periods, according to which the treatment of diseases must undergo modification.

2. OINTMENT OF THE PROTO-IODURET OF MERCURY.

The following formulæ express the quantities of the ingredients in the several strengths of the ointment which I am in the habit of prescribing:—

	No. 1.	No. 2.	No. 3.
R. Proto-ioduret of mercury	℥ ij.	℥ ij.	℥ iv.
Fresh lard	℥ ij.	℥ ij.	℥ ij.

This ointment is, when properly prepared, of a canary-yellow colour; sometimes it presents a dead-green tint, which is owing

confined to its external application than at an earlier period of its use; as in many cases its absorption has been rapid, and constitutional effects have been soon produced, in which case the internal administration of it has been suspended. Patients are met with, occasionally, who will not bear the external application of iodine in any form, even for a short time, without its producing constitutional effects; the symptoms of which are generally an increased velocity of pulse, very foul tongue, head-ach, pains in the back and limbs, thirst, loss of appetite, and the general symptoms of pyrexia.

Manson mentions four cases of disease in the hip, in which the tincture of iodine was employed as the chief remedy; and this author is an advocate for its exhibition in the early stage.*

Lugol also relates three cases of diseased hip,

to the presence of some protoxide of the metal. At other times its colour approaches to the orange, from the deuto-ioduret being formed. The latter admixture must be carefully avoided, the deuto-ioduret of mercury being nearly as escharotic a preparation as the deuto chloruret or corrosive sublimate.

IODURETED LOTIONS.

	No. 1.	No. 2.	No. 3.
R. Iodine.	gr. ij.	gr. ij.	gr. iv.
Hydriodate of potash	gr. iv.	gr. vj.	gr. viij.
Distilled water . .	℥. j.	℥. j.	℥. j.

These injections should be used in fistulous tracts. The remedy is here doubly valuable, by coming in contact with the diseased surfaces, and by affording us a means of tracing the course and extent of the fistulæ with more certainty than we can obtain by probes or other instrumental examinations.

* *Vide* Medical Researches on the Effect of Iodine. By A Manson, M.D.

in which the fistulous canals were injected with the iodureted solution, in addition to the application of the proto-ioduret of mercury to the sores.

In this stage of the disease, anodynes must be given to allay the pain: morphia or opium, particularly in weak and irritable constitutions, and when there is much pain and restlessness, or when diarrhœa comes on, is indispensable.

When there is great depression of the vital powers, nourishing diet and wine must be allowed; various tonics may be given, but in this stage none agree so well as the quinine.

During the discharge, hemorrhage occasionally takes place from the fistulous openings of the abscess, so as greatly to reduce strength, and sometimes to endanger life. If there be any reason to think that portions of bone are confined in any of the fistulous tracks, at no great distance from the orifice, the openings may be enlarged and the portions of bone removed.

After the abscess discharges, bathing and very gentle exercise may be employed, if no carious bone is coming away, and there is little local suffering.

If there is absorption of the head and neck of the thigh-bone, retraction of the limb, and abscesses formed and broken, there is a most important thing to be done; namely, to get the limb into its right situation; that is, descending perpendicularly from the pelvis, with the toe neither turning in nor out; so that, when healthy action

returns, and ankylosis takes place, it may take place so that the weight of the body will have a proper bearing on the limb; for a limb is of no use if it anchylose to the pelvis at a right angle. If it is properly done, and should afterwards be shorter, then we have only to supply the shortness with a cork shoe.

At a later period, when, in consequence of the extensive destruction of the articulation, the muscles begin to cause a shortening or retraction of the limb, great advantage will be found to arise from the constant application of a moderate extending force operating in such a manner as to counteract the action of the muscles. For this purpose an upright piece of wood may be fixed to the foot of the bedstead, opposite to the diseased limb, having a pulley at the upper part. A bandage may be placed round the thigh above the condyle, with a cord attached to it, passing over the pulley, and supporting a small weight at its other extremity. In a number of instances this plan will render the shortening less than it would otherwise have been, and at the same time prevent, or very much diminish, that excessive aggravation of the patient's sufferings with which the shortening of the limb is usually accompanied.

I have been favoured with the following interesting case by Mr. Barry, surgeon, of Richmond, proving that spontaneous reduction may take place in this disease. James Smith, the subject

of the present case, aged about forty years of age, and of fairly developed vital and locomotive systems, has been for a number of years employed in carrying the produce of a market garden to town, and generally by night, and has of late years suffered from rheumatism and occasional hepatic derangement. He is at present, February 10th, 1836, labouring under the most aggravated form of ulceration of the cartilages of the hip-joint, induced by a fall from a cart on the frozen ground about a month before. There is still evidence of the contusion over the trochanter, and received in a direction favourable to communicating the shock to the contents of the acetabulum, thus bruising not stretching, the ligamentum teres. Much febrile excitement, with delirium, the limb redder, hotter, and larger than its fellow, and apparently longer, with excruciating pain from the knee to the dorsum of the foot.

15th February. Bleeding from the arm once, saline medicines, with colchicum, and cooling lotions, have been attended with mitigation of symptoms.

March 8th. Luxation has taken place on the dorsum illii; the head of the femur can be felt, and the limb is shorter by about three inches and a-half, with slight inversion of the foot. During this stage, which lasted for eleven weeks, the most marked feature was the continuance of pain in the knee. The other violent symptoms having in great measure subsided, blisters, applied alter-

nately to the sides of the knee, gentle mercurial aperients, and the insertion of a seton in the groin, with occasional warm fomentations, constituted mainly the treatment during this term. All this time my opinion was, that the head of the femur had permanently taken up its abode on the ilium, and the marked amendment in all the symptoms on the first withdrawal of the ulcerated surfaces from each other, made me regard luxation as rather a desirable stage of the disease under the very great pain of this case.

20th May. Pain in the knee much better, seton discharging freely. Patient's strength (originally great) reduced much, but not subdued. Glutei muscles not much differing in appearance from their fellows of the sound side, but causing considerable pain by embracing too tightly the head of the bone in its new situation, and often spasmodically grasping it. I enveloped the whole limb, from the toes to the seat of disease, using as much tightness as I conceived would aid in counteracting irregular muscular action; and in this state, counter extension was used uninterruptedly for some days, in two directions, downwards and upwards; the foot being the portion of lever in the one case, and the upper part of the femur in the other, with appropriate parts of the bed-post for fulcra. The intention was simply to relieve the pain caused by the unusual action of the glutei, and for about four days the intention was fully answered by these means, when the exten-

sion, becoming a source of irritation, was discontinued two days after, being 2nd June; and about seven weeks from the time of luxation, while the female attendant was helping him to turn in bed, with her right hand on the inside of the thigh, and her left between the acetabulum and the new position of the head of the femur, the bone was felt by her hand rushing past this intermediate space. Next day I found the limb restored to within half an inch of its proper length, with neither inversion nor eversion of the foot, and pain gone. The patient says, he heard the sudden "snap," and exclaimed at the time that mischief had been done! It was, as has been seen, unlooked for reduction.

November 27th. For five months there has been no pain; the man walks upon crutches, and rides out in a cart, and he enjoys tolerable rest and appetite. The shortening by half an inch continues, and is attributable doubtless to the diminution of the bone and deepening of the acetabulum, between which it is fair to suppose ankylosis is taking place. There is that about the man, nevertheless, which makes me apprehensive of the result, but the case, which has been witnessed by Mr. Hollier, a very intelligent and clever medical friend, is one of interest, as being subversive of the doctrine, that "spontaneous luxations never admit of reduction."

Dr. Ducros, junior, appears to have reduced a spontaneous luxation of the femur forwards on

the horizontal ramus of the pubes, which occurred in a female, aged twenty-seven, labouring under inflammation of the hip-joint. Permanent extension and counter extension were kept up steadily for fifty days, and the patient, it is said, was then found completely relieved, not only of the danger of luxation, but also of the inflammation of the joint. At present, the patient walks freely, and everything about her proves a complete cure.*

The removal of the head of the bone has been recommended in this disease, where the acetabulum is supposed not to be affected. The following account of a successful case of this kind by Mr. White is taken from Mr. S. Cooper's *Surgical Dictionary*, seventh edition, page 272 :—"John West, a twin of delicate make, was born and resided in Westminster. When between four and five years old he suffered from scrofulous inflammation in the left hip-joint, which passed through the stages of elongation, dislocation, and subsequent retraction, and the femur was finally lodged in a very high position, on the dorsum of the ilium. About three years subsequent to the commencement of the disease, and when he was about eight years old, I first saw him. He was much emaciated; several abscesses had formed during this period around and over the diseased structures, leaving many fistulous openings, through which the probe easily

* *Gaz. des Hospitaux*, June 30, 1835.

detected the surface of the displaced bone to be in a state of caries, and several small exfoliations had occurred, from the ilium, ischium, and os pubis, over which bones abscesses had formed. In the progress of the disease, the knee of the affected limb had become inverted and firmly imbedded on the lower and inner part of the opposite thigh, from which position it could not be removed, and every attempt to do so was accompanied with exquisite pain. All further attempts, therefore, were abandoned, and the limb left undisturbed. He had now lain nearly three years, on the opposite side, with the body considerably incurvated, and without the power of changing his position. A profuse and debilitating discharge was constantly issuing from the numerous apertures leading to the carious surface of the displaced bone. In other respects, the health of the boy was tolerably good. Reflecting on this poor boy's case, it was evident, that unless the knee could be removed from its firm lodgment on the opposite thigh, he must remain in the position above described during the remainder of his life, and this could only be effected by removing the upper portion of the femur, which, from its trifling mobility, induced the belief that a firm union was taking place between its under surface and that of the ilium, with which it had been long in contact, and the form of which was very apparent under the thin integuments with which it was covered. Considering also that, as

an entire destruction of every texture which forms a healthy joint had taken place, no danger could be reasonably entertained from meddling with parts in their existing condition, and attempting the removal of the head of the displaced bone; and, further, that the strength of the boy from the profuse discharge kept up by the caries of the bone was never likely to be restored, I was induced, after mature reflection, to propose an operation for the removal of the upper part of the femur as far as it should be found in a state of caries, which, from examination with the probe, appeared to extend probably a little lower than the great trochanter. If this could be accomplished, it would set free the lower portion of the bone embedded on the opposite thigh, and enable me to draw outwards the whole limb, and possibly place the boy in a position equally favourable with those cases where a similar disease had occurred, and in which a compensatory joint is formed, on which locomotion is effected with or without the aid of a crutch.

The boy being placed on a table of convenient height, I proceeded to divide the integuments covering the bone, carrying the incision from an inch above the head directly along the middle line of the bone, about two inches below the great trochanter; this was completed at one incision, down to the surface of the bone. The integuments were dissected inwards and outwards, thus leaving the bone entirely bare a little lower down than the

lesser trochanter, which was distinctly visible. A spatula was now placed under that part of the bone which was intended to be sawn through, so as to protect the structures underneath; a smaller spatula was then introduced into the space made by the saw, and used as a lever to raise the bone; which, with a little dissection, was removed from the dorsum of the ilium. No vestige of the acetabulum remained, neither was any caries of the ilium discovered. The thigh was now readily brought into a straight line, and the knee liberated from its position on the thigh. The wound was closed by adhesive plaster, and no portion of the bone was left exposed. Splints, and an eight-tailed bandage were applied, and the limb placed in a straight position. The boy bore the operation well, and not more than two ounces of blood were lost. The head, neck, and trochanters, were very apparent, the caries being superficial, and not extending lower than the lesser one. The case proceeded very favourably, and in a few weeks every sinuous opening had healed, and also the incision made in the integuments. The patient rapidly acquired strength and flesh. At the end of two months I began to examine the parts, to ascertain if they had formed any attachment to the surrounding structures; and, on attempting to move the limb in different directions, I discovered that the boy himself had the power of raising the thigh upwards, which power gradually increased."

The same operation has been performed by Mr. Hewson; the patient survived the operation three months, when he declined, owing to excessive and large purulent collections, which were found to extend into the pelvis, through an opening in the cotyloid cavity.*

In case of ankylosis of the hip-joint from accident or disease, when the thigh is at right angles to the body, it has been proposed to saw through the femur, near to the trochanter major, and to form a new joint. Dr. Barton, of Philadelphia, has related a case† of ankylosis of the hip, in which the formation of an artificial joint was accomplished by sawing through the great trochanter, and part of the neck of the femur, afterwards extending the limb, and allowing the several parts to unite by ligament. The precise nature of the injury which led to the ankylosis of the joint does not appear, but the patient had fallen from the hatchway of a ship into the hold. The following is an account of his condition about seven months after the accident:—

“ He was supported by crutches, having the thigh drawn up nearly to a right angle with the axis of the pelvis, and the knee turned inward and projecting over the sound thigh, so that the outside of the foot presented forward. There was considerable enlargement round the hip, which so much obscured the case, even at this

* Hargrave's Operative Surgery, page 514.

† North American Surgical Journal.

date, as to prevent me from forming any positive opinion as to the real nature of the original injury. From the fixed and immoveable condition of the limb, it was impossible to ascertain whether, in a straight position, there would be shortening; and, if any, to what extent." At the end of little more than three months after the operation, the patient regained every motion of the limb which he originally possessed.

A case is also recorded by Dr. J. Kearney,* in which this operation was performed:—

"James Hall, an Irish labourer, aged forty-seven years, of healthy constitution, in October, 1829, suffered a severe injury by being caught between a vessel and the wharf. By this accident the left thigh was fractured about its middle, and the right hip-joint severely contused. For the treatment of those injuries he was placed on his back, Boyer's apparatus applied to the left thigh, and the right thigh flexed, rotated outwards and abducted. The apparatus being badly adjusted, sloughing took place in the left groin, and all dressings were removed. No extension was kept up from this time, and the os femoris united two inches shorter than the right. The inflammation of the hip-joint proved very severe, and terminated in complete bony ankylosis.

"He was admitted, under my care, into the New York Hospital, November 10th, 1830. At this time he could indeed walk, but with a painful

* Amer. Journ. of Med. Sciences. No. 50. Feb. 1840.

effort, and the knees, in the act of progression, were separated two feet and a half. He was unable to support his family, and was desirous of having the deformity remedied. His general health was good. In consultation with my colleagues, Drs. Mott, Stevens, and Cheesman, I proposed to cut down on the os femoris, saw it off immediately above the less trochanter, and as this limb was two inches longer than the other, to remove as much as possible of the bone between the trochanter and the head, so as to make the two limbs, as nearly as I could, of the same length. This plan was assented to; and, on the 24th of November, 1830, at twelve o'clock, the operation was performed in the following manner: An incision was made, six inches in length, in the course of the os femoris, beginning about an inch above the trochanter major. This was met about its middle by another from the front, three inches in length. The flaps were turned off, and the soft parts easily detached from the bone, so that in a short time, and with much less difficulty than I anticipated, my fingers were passed round the bone immediately above the trochanter minor. The division of the bone was attempted by the chain saw, but the instrument breaking, the section was completed with a saw recommended by Dr. Barton (*North Am. Med. and Surg. Journ.* for 1827, p. 292). This being accomplished, the limb was readily placed parallel with

its fellow; another section was made, and a wedge-shaped portion removed, the thickness of which at the outer part was about half an inch, and at the less trochanter three quarters of an inch. The removing a portion of bone of this shape I thought would enable me to keep the limb which had been greatly abducted more readily in situ. The wound was dressed with adhesive plaster and lint, and a bandage applied. The patient was now removed to his ward and placed on a firm mattress. The limb was kept in a proper position by a bandage to the feet.

“About the 1st of March the wound healed, and he was supported on crutches. He remained in the hospital until the beginning of May, 1831, when he left it of his own accord.

“*May, 1833.* My patient paid me a visit, walking well, and assisted only by a cane. He assured me that he could walk well enough if the left thigh gave him as little inconvenience as the one on which I had operated. But the left knee was somewhat stiff, as was the thigh, in consequence of the scars produced by the sloughs in the groin. He can rotate the right limb inward and outward; abduct it and flex it nearly to a right angle.”

The subsequent management of the limb must be a subject of great care. Ford mentions an instance of caries in the hip-joint, which, after eighteen years' continuance, proved fatal, from

the patient's irregularity of living, and from his laying aside his crutches before an ankylosis was perfectly formed.

Great care must likewise be exercised for many years after, to avoid jolting the limb.

The occupations which patients who have suffered from disease of the hip should subsequently follow is a subject of great importance.

Any business that requires great exertion of the joint, as long walks, long standing, peculiar positions, severe concussions, or great confinement, so as to endanger the general health, is injurious.

It is, for instance, almost impossible for a person who has suffered from this disease to follow the business of a tailor; or, at least, he cannot bring the legs into the position which tailors use, viz., that of resting each knee on the ball of the opposite foot.

The business of a shoemaker, on account of the concussions it requires, is not less objectionable. To these, Mitchell, who was so frequently attacked by this disease, may have owed its return.

CHAPTER II.

ON NERVOUS AFFECTIONS OF THE HIP-JOINT.

SECTION I. ON HYSTERICAL AFFECTIONS OF THE
HIP-JOINT.

PAINFUL affections of the joints are not unfrequent in hysterical females. It has been observed, indeed, that at least four-fifths of the females among the higher classes of society who are supposed to labour under diseases of the joints, labour under hysteria, and nothing else.

When the symptoms are referred to the hip-joint, the patient complains of great pain in the part, accompanied with excessive tenderness. The pain is aggravated by pressure and motion, so that the patient is obliged to confine herself to one position of the limb. The pain is not, however, limited to one spot, but extends to the lumbar region, and down the thigh even to the knee, and it is this general diffusion of painful sensibility which forms one of the diagnostic distinctions between this affection and disease of the hip-joint.

This sensibility of the limb to the touch is frequently so great that the slightest pressure on any part of the hip or thigh will cause the pa-

tient to scream; but this morbid condition will be found on careful examination to exist more in the skin than in the deep seated parts; for, as Sir B. Brodie* observes, "If you pinch the skin, lifting it at the same time off the subjacent parts, the patient complains more than when you forcibly squeeze the head of the thigh-bone into the socket of the acetabulum." The more the patient's attention is directed to the part, the more the pain is increased; but if her attention be directed otherwise, she will hardly complain.

In some cases the manifestations of the disease are confined to excessive pain and tenderness; and there is no visible alteration about the joint or other parts of the limb. In other instances, on the contrary, there is general tumefaction about the region of the joint as well as of the thigh.

When the tumefaction is limited to the immediate neighbourhood of the joint, it increases the difficulty of distinguishing this affection from disease of the hip-joint. The swelling in scrofulous affections of the hip-joint proceeds from the diseased condition of the various structures of the joint, and the formation of matter which attends their disorganization; whereas the fulness and swelling of the joint and limb, of which we now treat, is not at all connected with the formation of matter or disorganization of any of the structures of the joint.

* Lectures illustrative of certain local Nervous Affections, 8vo. p. 88. London, 1837.

In the nervous affections of the hip-joint there is a great tendency to contraction, either of the thigh on the pelvis, or of the leg on the thigh; and unless we take means from the commencement of the disease to counteract this, we have more trouble with the subsequent deformity than the original complaint.

In fact the muscles about the joint and pelvis contract in some cases in such a manner as to occasion a real shortening of the limb, and the patient cannot put the heel to the ground on a level with that of the sound leg; at times it is even so much drawn out of its natural position as to simulate actual dislocation of the hip-joint. I attended, with the late Mr. Harkness, a young lady at Limehouse affected with this disease. Before the patient was placed under our care, the case had been mistaken for disease of the hip, and *moxæ* had been applied. The most positive assurance on our parts could scarcely remove the impression which existed in the minds of the anxious parents, of there being no organic disease in the joint, and of there being no necessity to pursue the plan of counter-irritation which had been begun. The knee was very much contracted, and a good deal of trouble was experienced in straightening it. Some years elapsed from the first attack of the complaint before the patient quite recovered.

Sir C. Bell* has alluded to this condition of

* London Medical Gazette, vol. xiv. p. 297.

the muscles in these affections : “ Do you not remember,” says this surgeon, “ a young woman, in whom there was great difficulty to discover whether there was actual disease or not, in whom the pelvis was pitched obliquely, as if there were disease of the hip ? But then there arose a class of symptoms which pointed to the right source—a singular contraction and retraction of the leg—so that the knee was bent almost to the bursting of the ligaments, and the foot turned in so extraordinary a manner that the great toe lay close to the anus ! The retraction was so powerful that we naturally apprehended that the ligaments of the knee-joint must be destroyed. It proved to be a case of hysteria ; and, what was extraordinary, was the resemblance it had in every feature to the disease of the hip-joint.”

I recently saw an interesting case of this kind in St. Bartholomew’s Hospital, under the care of my friend Dr. Jeaffreson. The patient was twenty-eight years of age, and had suffered from hysterical affections for ten years. The right leg was doubled under the thigh, the heel rested against the tuberosity of the ischium, and the great toe, as in the case just related, was close to the anus.

The affected limb is liable to remarkable alternations of heat and cold ; at one part of the day the limb feels cold, and assumes a purple aspect ; at another hot flushes, followed by perspiration, break out over the extremity ; again, the limb

does not merely feel hot to the patient, but is actually so to the touch of another, and the whole capillaries of the affected part become turgid with excess of blood.

The age most liable to this disease is from fifteen to twenty; the catamenia are for the most part, though not always, irregular, and the bowels usually are constipated.

Nervous affections of the hip are distinguished from disease of the hip-joint by the following characters:—

In the nervous affection, pain is felt from the commencement in the hip, and is not confined to the loins and knee; the patient is also incapable of walking from the first, and the great and general nervous excitability, the extreme sensitiveness of the whole thigh, and the unaltered position of the trochanter major, convince us that the case is not one of disease of the hip-joint.

Again, there is no wasting of the glutæi muscles, and consequently no flattened appearance of the nates. The patient has none of those involuntary startings during sleep which cause such excruciating agony; on the contrary, however painful the limb may be when the patient is awake, no sooner is she asleep, than she sleeps soundly, and undisturbed by frightful dreams. In the proper hip disease, the reverse is the case, for even when nature is worn out by sufferings, no sooner does sleep come on than the pain produced by the diseased action going on in the joint

acts upon the dormant sensorium, and disturbs its rest by exciting disagreeable dreams.

There is one circumstance attending this nervous affection of the joints which is calculated to mislead practitioners, namely, their being for the most part consecutive to a blow or injury. In fact, it is generally some cause of this kind which determines the local habitation of the morbid nervous disposition that is lurking in the constitution.

Mr. Goodlad* considers the term hysterical as applied to these affections too vague, and that we should look for their cause in the brain or spinal marrow. "If after a careful examination of the hip," this author observes, "or of any other joint, and of the muscles connected with it, no adequate cause of pain can be discovered there, it surely becomes an imperative duty, and it is the only one remaining, to ascertain whether any and what cause exists in the course of the nerves, and if there be no such cause discoverable, the practitioner may safely rely upon finding it where it very frequently, nay by much the most frequently, exists, viz., at the point of connexion which those nerves possess, with larger masses of the nervous system; it matters not whether in the brain or in the spinal marrow, the same effects follow. The

* A Letter to Sir B. C. Brodie, Bart., containing a Critical Inquiry into his Lectures illustrative of certain Local Nervous Affections, p. 93.

tenderness of the skin, both here and in the spine, may alike be disregarded ; it is sometimes permanent, at others fugitive ; but in either case it is an indication only, where disorder may be found by tracing the nerves distributed on these parts to their origin."

With regard to the treatment of this complaint, it is obvious that if it be mistaken for organic disease of the hip, the practitioner will be led to adopt a line of practice, not only useless, but positively mischievous. Locally very little can be done with benefit in this affection, we are, therefore, called upon to treat the state of the nervous system generally, by imparting to it that tone by which alone we can expect to abate the extreme sensitiveness of the nerves in which the principal suffering is situated.

With this intention we are to induce the patient to leave her couch as soon as her painful sensations will allow, to entice her into taking exercise in a carriage in the open air, to recommend a plain and nutritious diet ; and to prescribe those medicines which give tone to the nervous system.

In true hysteria the vegetable tonics are more efficacious than the metallic ; but in this affection they possess no superiority. However, their employment is by no means to be thrown aside ; for in all cases where there is foulness of tongue, and other evident signs of derangement of the di-

gestive organs, they are more beneficial than any preparations of the metals.* But under different circumstances, as when the appetite is tolerably good, the tongue clean, and the bowels regular, then it is that the metallic tonics may be tried with great prospect of success.

In most neuralgic affections, the preparations of iron prove successful, and among these the carbonas ferri stands pre-eminent. This may be prescribed in as large doses as the stomach will bear without inconvenience.† Sir B. Brodie mentions the sulphas cupri with approbation, and

* I subjoin some of the formulæ I find most useful.

R. Infusi Gentianæ Comp: 3̄ vij.
Tinct: Valer: Ammon: 3̄ vj.

Cyathus parvus pro dose bis in die sumendus.

R. Decoct Cinchonæ 3̄ vij.
Tinct: Cinchonæ 3̄ j.
Acidi Sulp: dil: 3̄ j. ʒ.

Ut supra sumendum.

R. Infusi Calumbæ 3̄ vjss.
Tinct: Rhei.
Cinnam: Comp: ā ā 3̄ iv.

ʒ. Eodem dose capiendum.

† R. Ferri Carbon: 3̄ iv.
Confect Rosar: 3̄ iss.
Syr: Zingiberis q. s. ft.

Electuarium.

Capiat cochl: minimum ter quarterve in die.

R. Mist: Ferri Comp: 3̄ v.
Tinct: Assafœtidæ 3̄ vi. ʒ.

Cochl: ampla bis vel ter in die sumenda.

R. Pil: Rhei Comp: ʒ ij.
Cupri Sulph: gr. ij. ʒ.

Bene et ft. pil. xii.

Duæ bis dic sumendæ.

I have certainly seen it do good, when other tonics have failed; at other times the painful sensitiveness of the limb has been much relieved by the *sulphas zinci*, especially when administered in the manner recommended by Dr. Moseley.*

After the extreme nausea it excites has subsided, the whole nervous system feels invigorated, and the excessive sensitiveness of the affected limb diminished.

Ammonia has been given in this disease, but I have not seen any permanent benefit from its exhibition.

Among the medicines that directly soothe the pain, none are preferable to valerian;† for though much less powerful than opium and belladonna, it neither constipates the bowels, nor enfeebles the system.

“The medicines which I have found the most successful,” says Dr. Copland,‡ “are the spirits of

- * R. *Zinci Sulp*: gr. iv.—v.
Alum: et Pot: Sulp: gr. iij.
Aquæ fontan: ℥ iss.
Tinct: Lavend: Co: ℥ xv. ℥.
 ft. *Haustus primo mane sumendus ad tertiam vicem*.
 † R. *Mist: Camphoræ* ℥ vjss.
Tinct: Valerianæ
Tinct: Cinchonæ, ā ā 3 vj. ℥.
Capiat cyathum parvum bis in die.
 R. *Pil: Galban: Comp*: ʒ ij.
Camphoræ pulver gr. xvj.
Contunde simul optime, deinde divide in pilulas xii.
Sumat ægra duas vel tres omni nocte.

‡ Dictionary of Practical Medicine, by James Copland, M.D.
 Article, *Hysteria*.

turpentine,* prescribed in various modes, internally and externally, and administered in enemata; the preparations of iodine, alone, or with narcotics and camphor. These, however, should be associated with suitable adjuvants; amongst which, the several narcotics and antispasmodics are the most important. The warm or vapour bath, simple or variously mediated; mental excitement, and exercise taken regularly and energetically; and employment of the mind, are also important aids in the treatment. The affections of the joints are sometimes accompanied, or even alternated, with severe nervous pains in the extremities, and occasionally with tenderness in some portion of the spine. In such cases the treatment hardly requires any material alteration. In those which have come under my care, I have very frequently prescribed the spirit of turpentine as already stated, and often repeatedly in enemata; and after two or three doses of it, I have commenced with the preparations of iodine, conjoined with henbane, opium, or belladonna. Whilst the iodine has been given, the turpentine has been administered in enemata, from time to time;

* The spirit of turpentine was first recommended by Dr. Copland for these states of hysteria, and for neuralgic and similar affections. It has recently been advised for the same complaints by some French physicians. The originality of the practice may be known by referring to a *Memoir on the Employment of Terebinthinous Remedies in Disease*, by James Copland, M. D., &c., published in the *London Medical and Physical Journal*, for July and August, 1821, pp. 107—193.

and embrocations or liniments assiduously employed."

When the pain has been extreme and almost insufferable, the local abstraction of blood by leeches has afforded relief: but it has been only temporary, and as the effect of the loss of blood necessarily is to weaken the frame, their application cannot be often repeated without producing permanent mischief.

Counter-irritants, such as blisters, setons, stimulating liniments, mustard-poultices and the like, all aggravate instead of relieving the pain. The emplastrum belladonnæ or opii, and sedative liniments are the only local applications which I employ.*

In accordance with the views to which I have alluded, Mr. Goodlad thinks that in addition to whatever may be deemed necessary for the general state of the system, local measures must be had recourse to, *not* applied to the part where the pain is experienced, or to the organ which is labouring under disease, but to the origin of the nerves distributed to it; and the greatest caution seems necessary that nothing applied there can give local activity to vessels already too active.

* R. Liniment: Saponis ʒ ij.
Tr. Opii ʒ ss. fiat.
Linimentum p. r. n. dolor. urgent. usurpandum.

R. Liniment: Camph: ʒ ijss.
Extract: Belladonnæ. ʒ ij.

Ut supra usurpandum.

Empl: Extract: Belladonnæ Compos: parti dolenti applicetur.

The aid of operative surgery has been resorted to as a means of cure, but with no success; the nerves in the immediate vicinity of the neuralgic affection have been divided, but without the least benefit; the limb has even been amputated, and with the same results.

Nothing assists the cure more than abstracting the patient's mind from her sufferings, by cheerful society and cheering hopes of her recovery; and if the patient be resident in a town, a removal to the country air, especially in summer, will much facilitate recovery.

SECTION II. ON SCIATICA.

THREE affections, each distinguished by particular symptoms, have been classified under the term sciatica. In the first the pain is confined to the hip-joint, and all the attendant circumstances clearly demonstrate that the complaint is purely rheumatic. The severity of the symptoms varies with the changes of the weather; when the patient begins to use the limb, the pain is intense, but it partially abates as the exertion is continued, and the heat and circulation of the parts affected are increased and stimulated by exercise. There is not unfrequently rheumatism in some other parts of the body; and if we trace the disease to its origin, we shall find that its exciting cause was such as commonly gives rise to rheumatic affections in general.*

* This forms the *Pseudo-sciatica* of Riolanus (Encherid. Anat. lv. c. 3.), and the *Ischias Notha* of Fernelius.

This disease, therefore, is sciatic rheumatism, and essentially differs in its nature from sciatica, properly so called.

The earliest and, even up to the present period, one of the best writers on the latter complaint is Cotunnius, who was physician to the Hospital of Incurables at Naples.* This excellent practical writer divides sciatica proper into two species, according to the sciatic or crural nerves being the principal seat of the complaint.

The first is characterized by a fixed pain in the hip, chiefly behind the great trochanter, which extends upwards to the os-sacrum, and downwards on the outside of the thigh to the knee. The pain seldom stops at the knee, but often runs on the outer part of the head of the fibula, and descends to the fore part of the leg, where it pursues its course, along the outside of the anterior spine of the tibia, in front of the outer ankle to the dorsum of the foot.

The second species of sciatica, on the other hand, is distinguished by a fixed pain in the groin, which runs along the inside of the thigh and leg, following, in fact, the track of the principal ramifications of the anterior crural nerve, as the other does those of the sciatic.

The former of these affections Cotunnius designates, from its being seated in the ischiatic nerve, "Posterior nervous sciatica;" the latter, which invests the fore part of the hip, and is propagated along the crural nerve, "Anterior

* De Ischide Nervosa.

nervous sciatica.” According to Paletta,* sometimes the disease affects both nerves at the same time.

The pain in posterior nervous sciatica varies: sometimes it is continual both day and night; at other times it intermits during the day and returns in the evening: but in both it is to be remarked, that an exacerbation of pain takes place in the evening; the pain is likewise aggravated by the warmth of bed. When most violent, it not unfrequently produces spasmodic twitchings of the limb.

The pain in this complaint is usually constant at the first part of the night, but as night advances it begins to remit; on the remission ceasing, the pain returns more violent than before.

There can be little doubt of the real seat of the complaint being in the sciatic nerve, for, as Cottunnius remarks, if the patient be asked to point out with his finger the track of the pain from the os sacrum to the foot, we shall find him, like a skilful anatomist, tracing the exact course of the sciatic nerve.

If the disease does not soon subside, the patient becomes very lame, and the limb wastes. These effects arise mainly from the diseased condition of the nerve affecting the nutritive function proper to the muscles, as well as from the state of inactivity in which they are so long kept. This is clearly shown by the emaciation and the want of

* *Exercitationes Pathologicæ.*

muscular power being confined to those parts only that are the seat of pain. Complete loss of power or palsy never occurs in this disease.

The disease never proves fatal, neither does it very materially affect the general health. Cotunnus mentions the case of one of his patients who had laboured under the disease for nearly thirty years, and though the limb had become much wasted, he was otherwise healthy.

In sciatica, during the recumbent position, there is not observed the slightest stiffness in the joint, nor generally any apparent difference in the length of the limbs; but sometimes owing to the violence of the pain, and the corresponding spasmodic contraction of the muscles, the thigh-bone is pressed deeper into the acetabulum, and the limb is thus shortened.

With respect to the causes giving rise to this complaint, long exposure of the hip to cold and wet is one of the most frequent; such as sitting or lying on wet ground in cold weather, or when the limb is in a state of perspiration after some violent exercise, or from exposure of one side of the body to the cold night air, riding outside of a carriage, &c.

Riverius relates a case of a person who brought on the complaint by having immersed his feet for a long while in cold water, and who was afterwards cured by a profuse sweat. Paletta acquaints us, that he has known the disease to supervene immediately after small-pox; and gives

a case which ensued on the disappearance of a herpetic eruption: he likewise knew a case immediately to follow subacute inflammation of the peritoneum. The sudden suppression of certain discharges or secretions, as of the lochia, catamenia, hæmorrhoids, or milk, has likewise been ascertained to be occasionally a cause. It has not unfrequently been known to follow blows or other injuries of the hip, and likewise strains in lifting great weights.

Tumours within the pelvis pressing on the lumbar or sciatic nerves, enlargement of the uterus, scybala in the rectum, hæmorrhoids, and curvature of the spine, occasionally give rise to the disease.

Derangement of the stomach and irritation along the intestinal canal will often cause this complaint. Mr. Abernethy informs us, that there are many cases in which people halt as if they had disease of the hip-joint, and yet, upon putting their digestive organs right, they get well; that now and then pain referred to the hip and the knee, and even wasting of one of the limbs, from disuse, will occasionally arise, in consequence of disorders of the digestive organs, from irritation in the intestinal canal, from the lodgement therein of sordes, or worms; that the pain may be referred to the source of the sciatic nerve, or the anterior crural; and that the muscles may all shrink to a certain extent; but that, by putting the digestive organs into a proper condition, by

driving the worms out or evacuating the sordes, the patient is again restored to health, the limb becomes vigorous, and the muscles regain their former condition and development.

Sir C. Bell* also alludes, in his Lectures, to sympathetic affections of the hip-joint. "The nerves which go to the internal part," says this eminent surgeon, "have branches which run externally over the ilium, and the nerves which pass over the ilium to the hip, and those which pass anteriorly to the groin, are often affected by disorders within;—disorders of the bladder, of the kidneys, and of the rectum. Sometimes a patient will merely have piles; he will not tell you of them, but complain of these pains in the hip, thus concealing the cause of the sympathetic pain. So again a man may labour under stricture; the stricture affects the bladder, the affection of the bladder will be shown by stiffness and pain in the loins and the hip. You cure the man of his stricture, and when the bladder dilates freely, and the kidney regains its functions, he will get rid of what he has called his lumbago and the stiffness in the hip-joint; and so far from walking double, or stooping, and being unable to rise again, he is free from pain, and capable of free motion in the hips and joints."

From the disease itself never proving fatal, few opportunities occur for ascertaining the pathology of the complaint.

* London Medical Gazette, vol. xiv. p. 297.

The following interesting case, related by M. Guerin, illustrates the morbid condition of the nerve in this disease :—

Andrew Duborough, waggoner, aged fifty-eight, entered the hospital with symptoms of pneumonia, which continued about four days ; he complained also of acute pain in the right knee, numbness of the feet, and painful shootings along the course of the sciatic and external saphena nerves. These pains had preceded the attack of pneumonia four or five days, they had changed their seat several times, and had even attacked the opposite limb. The application of leeches and a perpetual blister over the head of the fibula, produced slight relief. In the mean while, the pneumonia continued with undiminished severity ; there was swelling of the foot and leg, which did not pit under the finger. The patient died on the eighth day after his admission to the hospital. At the post mortem examination, the right sciatic nerve, from the lower fourth of the thigh, the tibial nerve, to the point where it passes between the gastronemii muscles, and the external saphena nerve, in nearly its whole course, were inflamed.

The inflammation was characterized by a slight redness with serous infiltration, and a moderate degree of tumefaction of the above nerves, particularly of the saphena at its commencement. This nerve was at least double its natural size, of an uniform scarlet colour, and of a hard fleshy

texture. In endeavouring to dissect the numerous fibres, both from above and below, towards this spot, they broke, and appeared to be involved in a spongy cord, which was infiltrated with blood and resistant to the touch; a section of this cord showed nothing but small coagula of blood. In contact with the inflamed saphena nerve, below the gastrocnemii, was a collection of pus, rather effused into the cellular membrane than enclosed within an abscess, and not penetrating the substance of the nerve.

The filaments of the sciatic and tibial nerves were separated, and as it were dissected, by means of infiltrated serum, to a considerable distance, both above and below the seat of the inflammation.

Cotunnus mentions that, on examination after death, he found the theca or sheath of the nerves thicker than usual, and of a red or stained appearance: the nerve itself, though paler, was not entirely free from this appearance. Fluid was found under the theca of that part of the nerve which extends from the head of the fibula to the bottom of the foot, and from the middle of the tibia there was so large a quantity that the sheath was quite detached from the nerve.

The duration of sciatica varies from a few days to several years. In chronic cases, sciatica is sometimes confounded with disease of the hip-joint, but it may be distinguished from the latter affection by the following signs:—

1st. In sciatica,* the pain† is usually felt, at the very commencement, in the hip, immediately behind the great trochanter, and extends to the sacrum, or along the course of the nerve, to the outer ankle or the outside of the foot: in disease of the hip, the pain is not unfrequently absent, it is more on the upper and fore part of the thigh, principally attacks the knee, and never follows the course of the sciatic nerve. In the nervous affection, the pain sometimes indeed occurs on the fore part of the thigh, as when the anterior crural nerve is affected, and pressure, where the nerve passes under Poupart's ligament, increases the pain: disease of the hip might then be mistaken for sciatica, if the other marks of distinction were not sufficiently evident.

2nd. Patients who suffer from sciatica are lame, and find great difficulty in walking; many of those who have disease of the hip can go about pretty well during its first stage.

3rd. In sciatica no change can be perceived in the direction of the trochanter: in disease of the hip, on the contrary, it deviates more or less from its natural position.

4th. In sciatica, during the recumbent position, there is not observed the slightest stiffness in the joint, nor generally any apparent difference in the length of the limbs: in disease of the hip,

* *Commentatio de Ischiade Nervosâ*; Auctor. Cotunni. Vienna, 1770.

† Rust. cit. op. p. 52.

this is the case only in the first stage, and, at all other times, the free motion of the joint is impaired, and the relative length of the limb affected.

5th. Sometimes, in sciatica, owing to the violence of the pain and the consequent spasmodic contraction of the muscles, the limb is pressed deeper into the acetabulum and is thus shortened ; but then, there is no previous lengthening as in the hip-disease.

At the commencement of the disease, the local abstraction of blood by cupping or leeches always affords ease, and sometimes cures the complaint. Bleeding especially relieves, if the exciting cause has been the suppression of some habitual discharge, such as the catamenia and hæmorrhage from piles.

Cotunnius narrates a case of sciatica which was removed in three days by a spontaneous bleeding from hæmorrhoids. There is an undoubted sympathy between the pelvic viscera and the lower extremities, owing to the connexion between their nerves, and hence it is that on the approach of the menstrual period, or of a hæmorrhoidal hæmorrhage, pains are often felt in the limbs, which cease on the appearance of the discharge.

When suppression of the menses has been the cause of the disease, the application of dry cupping glasses to the inner and upper part of the thighs has been the means of affording almost instant

relief; and this is more likely to prove successful if employed about the period at which the catamenia ought to appear.

In locally abstracting blood, the continental surgeons usually prefer taking it from the branch of the saphena, near the outer ankle, in the belief that it is more beneficial than when abstracted from the vicinity of the hip.

As there is reason for believing that, in the beginning, an obscure inflammatory action is set up within the theca of the sciatic nerve, we can well account for the benefit derived from acting freely on the bowels.

Cotunnus was in the habit of prescribing enemata in this affection, and says that, if used in the evening, they alleviated, if they did not prevent, the evening paroxysms. However, it is essential to bear in mind that, in whatever way aperients are administered, they should be mild in their operation, for drastic purges do harm instead of good.

When the disease has been of long standing, and the pain is very severe, we shall derive great advantage from the use of the aconitina. I often prescribe it to be employed in the form of an ointment, in the proportion of six grains of the aconita, with a few drops of spirits of wine to dissolve it, to six drachms of lard. A little of the ointment of the size of a pea is to be rubbed over the region of the hip, whenever the pain is very violent. Its use should be discontinued

when numbness or tingling comes on. The great objection, in public practice, to the employment of this remedy, is its expense; and in private practice, the great care and watching which its exhibition requires.

The following case, which was very severe in its character, was completely cured by the external application of the aconitina and the use of the iodide of potass and sarsaparilla internally. A gentleman, æt fifty, consulted me on the 3d November, 1836, on account of the following symptoms: pain at the posterior part of the hip-joint and thigh, extending down the back of the leg and along the outside of the foot; within the last two months these symptoms had much increased, in fact he experienced a gnawing sensation in the thigh, and spasmodic twitchings and contractions of the whole limb, especially if pressure were made on the sciatic nerve. His general health was good. I ordered the aconitina in the following form:—

R. Aconitinæ gr. vj.
 Spirit: Vini q. s. ad solv:
 Adipis ℥i.

A little of the ointment of the size of a pea to be rubbed on the part, when the pain is very severe; the application to be discontinued as soon as pain and tingling occur.

Internally, the following mixture was prescribed:—

R. Decoct: Sarsæ Co: . . . ℥xv.
 Tr. Calumbæ ℥i.
 Potass: Iodid: g. xv.
 Iodinæ g. iss.
 Extract: Sarsæ ℥iij.

Two table spoonsful to be taken twice a-day.

This plan was continued till the 2d of December with great benefit; but when in bed and lying on the affected side, pain was still felt in the joint and along the back of the thigh to the calf of the leg. These symptoms, however, gradually subsided, and the patient was completely cured by the middle of the following month.

An ointment composed of from two scruples to a drachm of hydriodate of potass to an ounce of lard is also a very serviceable application, particularly when we have reason to believe that depositions have taken place in consequence of the long continuance of morbid action.

Stimulating liniments, containing ammonia, cantharides, and the like; mustard applications and blisters are of service in this complaint. Cotunnus was in the habit of applying blisters over the nerve, just where it becomes superficial below the head of the fibula, and over the instep. The application of blisters should be repeated in preference to keeping one open.

I have seen issues tried, but the result has not been such as to warrant me in recommending them. Issues have been made in two different places; immediately behind the trochanter major, and between the heads of the gastrocnemius muscle. The latter is the part recommended by Scultetus and Adrian Spigelius, and several cases are related by Paletta in his "*Observationes Pathologicae*," of their success. The same practice

is further confirmed by what Cotunnus relates of the success obtained from establishing counter-irritation and a discharge from below the knee.

Electricity has been had recourse to in sciatica, and there are cases of long standing recorded, in which it has succeeded when other means have failed. Verati* relates an instance of cure by this agency, where the disease had withstood all other means for nine months.

Opium and morphia (I prefer the latter) always afford great relief to the pain; and it may be administered either by the mouth or by injection. Of the two methods perhaps the latter is the most beneficial, from its operating more directly on the nervous sympathies of the affected part.

The employment of mercury in this disease has been found of no service, unless when there has been cause for suspecting it to be connected with a syphilitic taint, in which case we derive relief from its use, especially when conjoined with the decoction of sarsaparilla.

“In chronic cases,” as Dr. Rowland† rightly observes, “a careful examination of the pelvic viscera should never be neglected, as it may lead to the detection of tumours, enlargement of the uterus, scybala accumulated in the rectum, &c., occasioning pressure on the pelvic and lumbar

* V. Ozzervazioni Fisico-medici, p. 39.

† On Neuralgia, by Richard Rowland, M.D., 8vo., p. 173, 1838.

nerves; by reducing any unusual irritation of these organs, whether dependent upon organic disease, or merely deranged function, the sciatica may sometimes be relieved.

“When there is much disturbance excited, in consequence of hæmorrhoids, the sciatic pains may be frequently relieved by subduing the irritation arising from these tumours, and subsequently administering the common remedies for neuralgia. Much benefit has sometimes been derived in protracted cases, by the patients resolutely persevering in the use of exercise, of which a very striking example is given by Pinel. A gentleman who had long suffered from this affection, and had tried many remedies under the direction of that eminent physician, without the least advantage, was finally cured by resuming the fatigues incident to the profession of a soldier.”

In a case communicated by Dr. Marcet, and published in the *Medico-Chirurgical Transactions*, the pains were removed by the patient persisting in the daily use of exercise, with his body wrapped up in several folds of flannel. The use of flannel is, indeed very important, both as a means of cure in chronic sciatica, and in preventing a relapse.

The internal exhibition of turpentine has been much praised, especially by the continental physicians in cases of this kind; Martinet succeeded in removing several obstinate cases by this treat-

ment, and M. Dufour cured six patients with the same remedy. Turpentine has also been employed advantageously in the form of an injection and as an external application.

This affection of the sciatic nerve not unfrequently co-exists with irritability of the bladder, the latter complaint aggravating considerably the distress of the patient. In these cases I find the disosma in conjunction with the iodide of potass and tincture of henbane of great service.*

SECTION III. ON PARALYTIC AFFECTIONS OF THE LOWER EXTREMITIES.

A MOTHER brings her child to a surgeon with supposed disease of the hip: on inquiry he learns that the patient could not walk at the usual period; but that, when eighteen or twenty months old, or even at an earlier age, he was unable to stand, and that the child was at this time cutting the teeth. On examination of the limb, we find it wasted and apparently longer than the other, the nates of the affected side flat, and the temperature of the whole limb below the natural standard. When the child attempts to walk, it cannot raise the limb from the ground, but draws it along; and when it stands, the weight of the

* Infus: Diosmæ	3̄ vij. ss.
Potass: Iodid:	gr. xij.
Tr. Hyoscyami	3̄ iij.
Cap: Coch: ij.	vel. iij.	ampl. ter in die.

whole body is rested on the sound one, while that of the affected side is half bent.

The diagnostic mark of the disease is the absence of any pain in the joint. If we place the child on a table, and press in the neighbourhood of the articulation, or rotate the head of the femur, no pain is produced ; whereas, in the disease of the hip, pain would be experienced.

After the period of dentition, the general health is little affected by this complaint ; some years, however, commonly elapse before the child recovers much use of the limb. I know a boy now fourteen years and a-half old, who was attacked with this disease in the right lower extremity when at the age of a year and ten months, but who has not yet quite recovered the use of the limb : there is still a wasting of the muscles of the leg and thigh, a falling in of the nates, and eversion of the foot : when he walks, the limb is propelled as if it were an artificial contrivance fastened to the body ; it is also longer than the other, and there is a curvature of the spine owing to the altered axis of the body.

The effects of this attack are not merely the partial paralysis of the limb, but sometimes considerable distortion. This for the most part makes its appearance in the displacement of the foot from its natural position : certain muscles in particular are affected with paralysis ; and the consequence is, that the stronger set naturally prevailing, drag the foot in their own direction.

If the paralysis affect principally the extensor set of muscles, the heel is drawn upwards, and the foot becomes clubbed; if, on the contrary, the flexors be paralysed, then the extensors prevail, and the foot may be either inverted or everted. The deformity in these cases frequently admits of being relieved by the division of the contracted tendons.

A lad was admitted this season into the Margate Infirmary with the left lower extremity in a weakened state from previous paralysis. His health was much benefited by the change, and the limb was on the whole stronger. But on his admission the child could only walk on his toes, the heel being nearly three inches from the ground. On his return to town I divided the tendo Achillis, and the child now walks with the foot flat on the ground;—such cases are far from being rare.

Mr. Gay, whose experience in the operative treatment of deformities has been very extensive, has kindly favoured me with the following interesting cases in illustration of this part of my subject:—

CASE.—“Susannah Seeting, ætat 12, admitted into the Royal Free Hospital, August 18, 1840, with club foot. Her mother stated that she was born with the perfect use of her limbs, but that during dentition she was seized with paralysis of the left side, accompanied with convulsions and followed by deformity of the foot. From the

period of that occurrence the development of the lower extremities has not been equal, the left being smaller, and constantly at a temperature sensibly lower than that of the right; although the paralysis has, by the frequent use of friction and other remedies, so far subsided that for the last three or four years she has been enabled to walk tolerably well without assistance. In this girl, the injudicious act of walking upon a limb enfeebled by partial paralysis, and with a foot prone to deformity, produced a talipes of the highest grade. The heel was elevated; the front part of the foot incurvated; and the sole directed towards the opposite foot, so that in standing a portion of the outer edge came into contact with the ground, defended by a cushion of dense cuticle. On the 22nd of August, the tendons of the adductor and flexor longus pollicis, with the tendo Achillis, were divided, and Scarpa's shoe applied. By these means, and following up the usual remedies for paralysis, the pristine shape of the foot has been recovered, and voluntary power is being rapidly restored. It is interesting to remark, in the foregoing case, that the voluntary movement of the muscles of the foot and leg received a powerful stimulus to restoration from the more perfect condition of the ankle-joint, which was regained in consequence of the division of the above-mentioned tendons."

CASE.—"Ann Ware, ætat 11, admitted October 27, 1840, suffered so severely whilst cutting her

canine teeth, that she was reduced to an extremely enfeebled condition. As her recovery proceeded, it was observed that the *left* arm and leg were paralysed, and that the *right* eye was affected with strabismus from a palsied state of the rectus externus. About a month afterwards, the foot appeared to be slightly deformed; and to the time of her admission the deformity has gradually increased, and become considerably aggravated by her having used the limb in walking during the last seven years. The arm has recovered its strength and usefulness, and the strabismus has become less in degree; but as regards the muscles of the leg and foot, voluntary motion has not returned at anything like an equal ratio. The heel had become much elevated by an extension of the foot to its utmost, and the internal lateral ligament of the ankle-joint (the deltoid) had, with the tendon of the tibialis posticus, yielded to the weight of the body in walking, permitting considerable laxity in the lateral movement of the astragalus, and eversion of the sole of the foot. I divided the tendo of Achillis on the 7th of November. The foot could be readily flexed after the operation. On the sixth day she was allowed to make her first efforts to walk, but in the attempt she appeared rather to drag her foot than to possess the slightest power of raising it. The limb has been rubbed well daily, and it is gratifying to observe the progress which she has since made. The movements of her foot are now under the control of

the will, and each day shows some accession to its usefulness, giving every encouragement for anticipating an almost perfected condition of the limb. This, with the first case, tends to illustrate the position, that the recovery of the muscles of a limb from paralysis is in a great degree dependent upon its physical condition, and that such recovery is very closely linked with the amount to which, in a case of distortion, restoration can be effected."

The means of treatment in this complaint consist in endeavouring to restore vigour to the motive powers. The atrophied limb should be assiduously rubbed two or three times a-day; and the patient (if sufficiently old) should be made to exercise the muscles in maintaining and varying the vertical position. This sort of graduated exercise will slowly re-establish a certain degree of power of the weakened muscles, and eventually improve the tone of the entire system. In addition, the affected limb may be immersed in hot salt water for ten minutes daily, and active friction afterwards employed.

Great benefit will also be derived from medical treatment regulated according to the constitution of the patient. In some instances, leeches to the head or spine and brisk purgatives may be required, in others, on the contrary, steel wine, quinine and other tonics, and electricity, will be necessary; but in all cases great perseverance must be exercised, both by the patient and

medical attendant, as a long time elapses before any material improvement takes place, even under the most favourable circumstances.

In the following case, the parents considered the child derived great benefit from change of air in the summer seasons. Master George H. Bartlett, æt. eighteen months, was brought to me, March, 1838, with a supposed affection of the right hip-joint; when seven months old, he suffered a great deal from cutting the incisors, and his lower extremities were, to a certain extent, paralysed. The left recovered its power in three or four months, but the right remained in a paralysed condition; the nates are flatter, the limb is thinner, a little longer and colder than the other; when the child attempts to walk, it makes the first effort or step with the sound limb, and then brings or draws the other in a semi-circular direction, with the foot everted. I ordered steel wine (half a drachm) twice a-day, and an alterative powder occasionally. Little improvement followed the use of these means. I advised the child to go to Margate to try hot salt-water bathing. This was followed by so much benefit that in the two successive seasons the same plan was adopted. As the power of the limb is not quite restored, I am now trying electricity.

As the temperature of the limb is below the natural standard, warm stockings ought always to be worn, and in the event of chilblains or ulcers

occurring in any part of the limb, which is not at all uncommon, in consequence of its vital energies being so much impaired, great care must be observed in their management. I usually apply some simple cerate to the sores, and envelop the whole limb in carded wool, not disturbing the dressing oftener than once in three or four days.

I have already mentioned that, in all cases of sciatica, a certain degree of muscular weakness remains for some time after the pain has ceased, but if no great emaciation of the limb has taken place, the strength gradually returns by using it. But in cases severe in their character, and long in their duration, where much wasting of the muscles has followed, the limb never thoroughly recovers, either its original size or strength. Not only are the muscles emaciated in these instances, but there is great nervous torpor throughout the entire limb, the circulation in the capillaries is exceedingly languid, and consequently it is at all times colder than the opposite extremity, and is easily chilled on comparatively slight reductions of temperature.

My experience in the treatment of cases of the latter description accords, I regret to say, with that of Cotunnus. Although I have often succeeded in restoring a certain portion of power to the limb, and some increase to the wasted muscles, I have never fully succeeded in restoring either to their wonted condition.

The means we should employ consist in a dili-

gent use of friction, conjoined with stimulating embrocations, mustard poultices, and the like. The hot salt-water bath and champooing the muscles are likewise to be employed. The general strength is to be improved, and I have seen much benefit at times derived from the internal use of the decoction of guaiacum, combined with dilute sulphuric acid.

A paralytic affection of one or both of the lower extremities not unfrequently follows chorea when it has been of long standing. Cases of this kind are incurable, particularly if the intellect partakes of the general imbecility; but where the mind remains unimpaired, much may be expected from the adoption of judicious treatment. In addition to the treatment pointed out for the relief of sciatic paralysis, counter-irritants of a more powerful nature are to be employed; and they are more beneficial if applied on the tract of the spinal marrow. It may likewise be observed that chalybeate tonics are more indicated in this case than the preceding; and guaiacum is not so often useful. The bowels in both kinds of the complaint should be duly attended to; but in the latter very active purgatives are from time to time required.

A form of paralysis frequently accompanies hysteria, and that peculiar affection of the hip which has been deemed to be of a hysterical nature. Sir B. Brodie, in speaking of hysterical paralysis, says, that it has this peculiarity: it is not

the muscles, in his opinion, that are incapable of obeying the act of volition, but it is that the function of volition is not exercised. How far this theory is well founded is a subject foreign to my present purpose to enter upon; however, the fact cannot be doubted, confirmed as it is by so many analogous examples; viz. that a great extent of muscular inability usually succeeds the cessation of the pain in the hip in this affection.

In treating this form of the complaint, little advantage is obtained from local means. Still as the limb gets soon chilled, warm, but not too stimulating, embrocations are to be rubbed over the tract of the principal nerves; and care taken by suitable clothing that the nervous energy of the part be sustained at a natural temperature. Our principal dependence, nevertheless, rests on pursuing those means for strengthening the nervous system which have been laid down in a previous section.

CHAPTER III.

ON CARCINOMA, FUNGUS HÆMATODES, AND MEDULLARY EXOSTOSIS OF THE HIP-JOINT.

THE malignant diseases of the hip-joint are fortunately of rare occurrence. These affections are always involved in great obscurity in their early stages, and their true nature is seldom discovered until the disease has made considerable progress. On examining the diseased structure after death, we find that some are characterized by medullary depositions, others by a semi-coagulated sanguineous fluid filling the osseous cells, while in a third there is only a dilatation of the cancellous structure of the bones, which cannot properly be called malignant.

SECTION I. ON CARCINOMA OF THE HIP-JOINT.

CARCINOMA of the bones rarely appears as a primary disease; for in almost every case it will be found that the disease has previously shown itself elsewhere, and that most usually in some of the glandular structures. Mr. Langstaff, however, possesses a specimen of carcinoma of the head and upper part of the thigh-bone, taken from a

patient in whom there were no signs of the disease in any other part of the body.

It is a singular peculiarity of carcinomatous action that, in attacking the bones, it renders them exceedingly brittle; so much so, indeed, that very slight accidents, and in some instances the action even of the muscles inserted into them, have been known to be sufficient to produce fracture. When fracture occurs in such circumstances, no union takes place; but inasmuch as the injury opens additional morbid secreting surfaces, it is always found that the accident accelerates the fatal issue of the case.

The symptoms of carcinomatous disease of the hip-joint at its commencement are always involved in great obscurity. There is often a dull, deep-seated pain felt in the affected part, sometimes slight, at other times more severe. This symptom is frequently mistaken for rheumatism, or a chill from exposure to wet, or a cold draught of air; and, on this supposition, the first approach of the complaint is usually neglected.

The following case, mentioned by Sir B. Brodie,* affords an example of carcinomatous disease affecting the head of the femur, and producing symptoms somewhat corresponding to those of disease of the hip-joint:—

“A lady between sixty and seventy years of age, in the year 1817, underwent the operation

* Pathological and Surgical Observations on the Diseases of the Joints, 3d edition, p. 281.

for the removal of a scirrhus breast. Some time afterwards, a hard tumor showed itself in the cicatrix; and, about the same period, she began to complain of pain in the left hip and thigh. On the 7th November, 1820, I saw her, when there was a large scirrhus tumor occupying the situation of the breast which had been amputated. She complained of pain in the hip, thigh, and knee, which was aggravated by pressure: the pain was very severe, keeping her awake at night, except when she was under the influence of a very large dose of opium. There was a cluster of enlarged glands in the groin, making a hard, and somewhat moveable tumor. On the 18th of December following, the patient died; on examination, it was found that the thigh-bone had broken transversely about two inches below the neck, and it was evident, from the appearance of the fracture, that it had taken place immediately before or after death; and, in either case, it must have been the result of some very trifling accident. The whole of the superior extremity of the thigh-bone was softer and more brittle than natural; but this morbid change was less distinct below than above the fracture, and it was more distinct in that part of the head of the bone which was contiguous to the cartilage. On making a section of the head and neck of the bone, the earthy matter was found to be very deficient, and a cartilaginous or gristly substance was seen blended with the bony structure. In several places there were spots of increased vascularity, with a deposition of some

cheesy matter in the centre. The cartilages were not ulcerated, and there was no effusion of pus, lymph, or serum into the cavity of the joint. The enlarged inguinal glands had the structure of scirrhus: and there was a similar mass of scirrhus lymphatic glands in the pelvis, immediately above the crural arch."

SECTION II. ON FUNGUS HÆMATODES OF THE HIP-JOINT.

THE morbid action commences, for the most part, in the cancellous structure, in the form of a deposition, not, however, like certain diseased secretions that possess no organization, but the mass is pervaded by a vascular tissue which contributes and appears essential to its growth. This morbid formation puts on three different characters. Sometimes the tumor consists of a substance resembling the medullary matter of brain, in other cases it resembles a coagulum of blood; while a third variety, which is the most common of all, consists of matter like brain in one part, and coagulum in another, the two being irregularly intermixed. The patient always complains of pain in the part, this, however, is regulated in a great degree by the rapidity with which the tumor increases. If it be slow, the pain is slight, the cellular septa being gradually absorbed as the deposition increases; but, on the contrary, if the growth of the tumor be rapid, which is the

most usual occurrence, then the pain is violent ; the septa not having time to be removed before the pressure becomes so great as to occasion severe suffering.

In this disease the tumor is usually situated over the trochanter major, and detached from the deep structures ; the skin covering it in this case is usually shining and discoloured, and when ulceration takes place, the surface of the wound assumes a fungoid appearance.

Mr. J. Burns in the second volume of his "Dissertation on Inflammation," page 311, has recorded a remarkable instance in which the hip-joint was affected with this disease. The upper part of the thigh swelled, while the lower wasted away. The patient lost his appetite, had a quick pulse, and passed sleepless nights. The part was rubbed with anodyne balsam, and laudanum was given every night ; but these means were only productive of temporary benefit. After some months, a difficulty of making water came on, which ended in a complete retention. It being found impracticable to introduce a catheter, and a large elastic tumor, supposed to be the distended bladder, being felt within the rectum, a trocar was pushed into the swelling. A good deal of bloody fluid was thus discharged. Afterwards a considerable quantity of high-coloured fetid urine continued to escape from the urethra. In about a week after this operation, the patient died.

On dissection, Mr. Burns found the hip-joint completely surrounded with a soft matter, resembling brain, enclosed in thin cells, and here and there other cavities full of thin bloody water presented themselves. The acetabulum and head of the os femoris were both carious. The muscles were quite pale, and almost like boiled liver, having lost their fibrous appearance. The same kind of substance was found in the pelvis, and most of the inside of the affected bones was carious. Large cells, containing bloody water, were observed in the diseased substance; and it was into one of these cavities that the trocar had entered when the attempt was made to tap the bladder.

This disease, like the preceding, is beyond relief from our art, and all we can do is to allay the sufferings of the patient by morphia, and to order such local applications as the state of the ulcerated surface may require.

SECTION III. ON MEDULLARY EXOSTOSIS OF THE HIP-JOINT.

THE first symptom of the disease is lameness; this is followed by a uniform swelling of the affected part, which increases with more rapidity than other enlargements of the bones. When it attains a considerable size, it presents the following appearances:—the skin retains its usual colour, excepting where it is traversed by veins.

On a superficial examination, the tumor seems hard; but on a careful investigation, a number of

soft spots, of greater or less extent, may be discovered on its surface. After attaining a considerable size, ulceration takes place, and a quantity of thin pus, mixed with a flocculent substance, is discharged.

The following case of this disease is related by Mr. Warren.* A young man, nineteen years old, of rather delicate constitution, a farmer by occupation, entered the hospital for a supposed disease of the left hip-joint. On the outside of the os femoris, above and below the great trochanter, appeared a swelling nine or ten inches long. On the outer part, it was quite hard; towards the fore part of the thigh, softer, without fluctuation.

He had some pain three or four months before, which he attributed to a severe blow. The bone was moveable in its socket, without much pain. The limb was not shortened nor turned out; so that Mr. W. was soon satisfied the disease was not a common hip case. After two or three weeks, the tumor extended down the outside of the thigh; manifested a softness, and fluctuation; and eventually pointed about the middle of the thigh. The constitution in the mean time had become much affected. He had frequent chills, quick pulse, loss of appetite and strength. The tumor was opened by a small incision, and discharged two quarts of watery flocculent pus, not offensive. On introducing a sound ten inches long, it passed its whole length upwards. On passing the finger,

* Surgical Observations on Tumors, p. 126.

the excavation was found to be filled with membranous partitions, forming large cells, containing a fluid like that spoken of above. In a short time after, the patient died. The upper part of the os femoris, excepting its head, was dilated into a large shell, composed of a bony network; the parts of which were connected together in some places by a half-formed cartilage, in others by a fibrous membrane, which was in the original periosteum expanded. In the cavity there was the vestige of bony cells, which were continuous with the membranous cells mentioned before. The head and the inferior extremity of the bone were healthy. The acetabulum also was perfectly sound.

This is a disease perfectly incurable, unless by removal of the part affected, and it often happens, from the seat of the complaint, as well as from the extent to which it has gone, that we are prevented from having recourse to this remedy.

CHAPTER IV.

ON CONGENITAL AFFECTIONS OF THE HIP-JOINT.

SECTION I. ON CONGENITAL DISPLACEMENT OF THE HEAD OF THE FEMUR.

IN this affection* the head of the femur is removed from the acetabulum to the external iliac fossa, its position being analogous to that which occurs in luxation of the femur backwards and upwards from accident, or from the disease already described.

The characters of this kind of luxation are shortening of the affected limb, ascent of the head of the bone into the external iliac fossa, projection of the great trochanter, retraction of almost all the muscles of the upper part of the thigh towards the crest of the ilia, where they form about the head of the femur a kind of cone, the apex of which is the great trochanter; almost complete

* Consult, on this affection, *Adversaria Chirurgica Prima*; Auet. Palletta. *Repertoire Générale d'Anatomie*, tom. ii. *Leçons Orales* of M. Dupuytren; *Medical Gazette*, 1833. This latter journal (January 1833) contains the translation of a paper from the *Leçons Orales* on this subject, to which I am indebted for much of the information in this section.

uncovering of the tuberosity of the ischium ; rotation of the limb inwards, and the consequent direction outwards of the heel and ham, and inwards of the point of the foot and knee ; an obliquity great in proportion to the age of the individual and the size of the pelvis, and from which results a tendency of the thighs to cross at their lower end.

The motions of the limbs are in general very limited, especially those of abduction and rotation. Hence great difficulty is experienced in standing and locomotion, and the other exercises in which the lower limbs are concerned. The want of proportion between the upper and lower parts of the body, the imperfect condition of the lower extremities, and the singularity of the attitude, are very apparent when the patient stands. The trunk is developed, while the lower limbs are short and thin, as if they belonged to an individual of smaller stature. This is rendered still more remarkable by the size of the pelvis, and the projection of the trochanters. As to the attitude, it is observed that the upper part of the trunk is inclined backwards, the lumbar vertebræ project forwards, being concave behind ; the pelvis is placed almost horizontally on the thighs ; the individual touching the ground with the point of the foot only ; all which circumstances result from the transposition of the ilio-femoral articulation, and from the centre of motion being situated at a point of the pelvis different from the

natural one. When persons with this affection attempt to walk, they raise themselves on the tips of the toes, lean the upper part of the body towards the limb, which should support the weight of the body, then lift the opposite foot from the ground, and with difficulty transfer the weight from one side to the other. In fact, every time the head of the femur receives the weight of the body, it is pushed on the external iliac fossa, the pelvis sinks, and all the signs of displacement becomes apparent on this side, while they proportionally disappear on the other. At first sight it seems strange that running and leaping should be performed with greater ease than walking. But in the former the energy of muscular contraction and the rapid shifting from limb to limb render the absence of the articular cavity much less evident. It is true that, in running, there is displayed a more marked equilibrium of the upper parts of the body, a more extensive movement of the pelvis at each side, and unwonted exertion in turning the body from side to side. But generally speaking, the most important of these difficulties disappear in leaping. The movements are somewhat different, as exemplified in some animals, whose bodies, not possessed of legs, are bent together at first, and then suddenly straightening like a compressed spring, are projected to a certain distance.

When persons thus affected lie on their backs, it is surprising to see the extent to which the

symptoms disappear. This depends on the muscles ceasing to drag the thighs upwards, the weight of the body not continuing to press the pelvis down between the heads of the thigh-bones. What proves the correctness of this explanation is the ease with which the limbs may be lengthened or shortened in this posture; if the distance from the crest of the ilium to the trochanter be taken as the test, it will be found to vary from one to three inches, in the erect and horizontal postures, according to the stature, age, and constitution of the individual, and the extent of displacement of the bones. All these changes are accomplished without pain; an evident proof of the absence of morbid action, and of the want of a proper cavity to receive and retain the head of the bone.

The characters which distinguish congenital displacement from disease of the hip-joint, are,—

1. In congenital lameness, the thigh is, from the first, shortened; in disease of the hip, on the contrary, in the first stage, no alteration from the natural length is perceptible; and afterwards the diseased limb is considerably lengthened before it becomes shorter. The shortening of the limb, also, which is observable in the last stage, is much more considerable than in congenital dislocation.

2. In this congenital malformation, the shortened limb (if the child be put in a horizontal position, and the pelvis fixed with the hand) can,

by gentle pulling, be lengthened without any pain; and it immediately becomes short as soon as the extension ceases; in disease of the hip, this is not the case; and the shortened limb cannot be extended without the greatest pain.

3. In the congenital dislocation, the nates of the affected side are either in their natural state or somewhat flatter than in the natural state; on the contrary, when the limb is lengthened, the nates are flat; but when the limb is short, they are tense and projecting.

4. In this malformation the shortened limb, with very few exceptions, is not at the same time thinner and wasted, as is invariably the case in disease of the hip.

5. The motion of the hip is, in congenital dislocation, as free as in the healthy state; the child, with the exception of the lameness, being well and free from pain; in disease of the hip, on the contrary, when the limb is once shortened, the motions of the limb are for ever impaired; the patient occasionally suffers from attacks of fever; and the disease, at least at these periods, is connected with paroxysms of pain.

6. In congenital dislocation, the child, when standing or walking, places the whole surface of the sole of the foot on the ground; those labouring under the disease of the hip rest only on the toes of the affected limb.

Post-mortem examinations of this nature are

very uncommon. Dupuytren always observed, that the muscles which have their attachments above and below the articular cavity are all dragged upwards towards the crest of the ilia. Of these muscles some are remarkably developed, others are diminished, and, as it were, atrophied. The first preserve their action; the others are restricted, perhaps totally impeded, in their motions, by the changes which have supervened in the form and position of the parts. Some are reduced to a species of yellowish fibrous tissue, in which the eye in vain seeks to detect anything like muscle.

The superior portion of the thigh preserves its natural form, dimensions, and relations. The internal and anterior side of the head of the bone occasionally loses somewhat of its rounded form, apparently in consequence of the friction it experiences against parts not adapted for its reception. The articular cavity is either completely deficient, or presents, as its sole vestige, a small irregular osseous prominence, in which it is frequently impossible to find any trace of cartilage, synovial or fibrous capsule or border, and which is surrounded by resisting cellular tissue, and covered by the muscles inserted into the lesser trochanter. In one of the subjects which Dupuytren examined, the round ligament of the articulation was much elongated, flattened superiorly, and as if worn in certain points by the pressure and friction of the head of the femur. The head

of the bone is situated in a cavity very similar to what is formed in unreduced dislocations of this bone, upwards and outwards. This new cavity, extremely superficial and almost deprived of any cartilaginous or fibrous rim, is situated in the external iliac fossa, above and behind the cotyloid cavity; in fine, we meet in these cases the same appearances as in dislocation from disease or accident.

Treatment.—It should be recollected that the heads of the thigh-bones have a natural tendency to ascend in the iliac fossa, in consequence of the weight of the trunk pressing down the pelvis; it should be our chief object, therefore, to prevent the weight of the body from pressing upon an articulation which has no regular cavity, and to restrain muscular action from being exercised on the femur. Accordingly rest is our chief remedy, and the best attitude is the sitting posture, in which the weight is supported, not by the ilio-femoral articulations, but by the tuberosities of the ischia. Cold bathing is of great service, and the body should be immersed for three or four minutes at a time in fresh or salt water. The effect of these baths is to strengthen the parts about the defective articulation, and to restrain the tendency upwards of the heads of the bones. Another auxiliary is the use of a belt, to surround the pelvis and fix the great trochanters, keeping them at the same height, and giving altogether a degree of compactness to the parts, so

as to prevent the perpetual oscillation of the trunk on the imperfect articulations. Dupuytren recommends that the belt be fixed round the narrow part of the pelvis, between the crests of the ilia and the trochanters; it ought to occupy the whole of this space, and for that purpose it should be about three or four fingers in breadth, according to the age and station of the person. It should be well stuffed with hair and cotton, and covered with kid-skin, so as not to injure the parts to which it is applied, and there should be tight and shallow gussets put in on the inner surface of the lower margin on each side, to receive and to hold the trochanters, though not to confine them entirely. Buckles and straps at the extremities, and directed backwards, should be contrived to fix the belt round the pelvis; and over all large drawers, stuffed and covered like the belt itself.

Extension has been tried by MM. Laford and Duval, at their establishment at Chaillot, on a child eight or nine years of age, affected with congenital displacement of both limbs; on persevering for three or four months, the good effects became very apparent.

“Original luxation of the femur,” says M. Dupuytren, in conclusion, “is by no means so rare as might be thought. I have met with five or six-and-twenty cases of the kind in the course of twenty years, the period at which my attention

was first called to the subject. Almost all the persons I have met with labouring under this malformation have been females; in fact, not above three or four out of the six-and-twenty have been males. Now we can scarcely admit that chance has been the sole cause of this disproportion: but supposing it constantly so, whence comes it that the other sex is more exposed to original luxation than ours? I confess that I am unable at present to assign any particular reason that would seem satisfactory. I can give at best but a general reason, namely, that vices of structure are, as it has been constantly observed, much more common in the female than the male sex."

SECTION II. ON OSSEOUS AND MUSCULAR MALFORMATIONS.

DELPECH describes an osseous malformation, producing lameness of one or both sides, as sometimes depending on the mal-position of the acetabula, which may be situated either more forward or more backward than in the natural position of the part.

These deviations are generally caused by rickets, and are accompanied with more or less deviation of the spinal column.

In these often obscure cases of lameness about the hip-joint, Delpech observes, that it is important to examine, with great care, the form of the pelvis and the dimensions of its parts, as well

as those of the lower extremities, their mobility, &c., in order to obtain a correct notion of the different causes of the mischief.

Delpech describes another species of lameness dependent on muscular malformation. This, similar to that dependent on want of conformity between the articulating surfaces of the hip-joint, is sometimes produced by unnatural shortness of the *psoas magnus* and *iliacus internus*, the effect of which is to hold the pelvis inclined forwards, to increase the natural curve of the lumbar vertebræ, to prevent the complete extension of the lower extremities, and to cause that alternate balancing of the body which is characteristic of deformities about the ilio-femoral articulation.

These cases are to be distinguished by the impossibility of extending the thighs beyond a certain point; by the elastic nature of the resistance opposing this motion; by the increased inclination forwards of the lower lumbar vertebræ when the extension is augmented; and by the renewed flexion of the thigh when the bend of the lumbar region is diminished.

There are other cases of lameness about the hip-joint dependent on defect in the relative length of the muscles of the posterior region of the thigh inserted into the tuberosity of the ischium, proceeding from an unusual inclination of the pelvis forwards.

In these cases, the extension of the legs has more freedom, and the flexion of this part is not

impeded ; but in those described above, the contrary occurs, and the patient prefers a sitting posture on very low seats, because he can then keep his limbs in that degree of relaxation that is agreeable. When the patient holds himself upright, the condyles of the femur draw upwards the muscles of the calf, and the heel is raised from the ground. The increased undulations of the spine from the too forward inclination of the pelvis ; the alternate angles formed by the thighs and legs imperfectly extended, and by the foot, the flexion of which is not sufficient ; the narrowness of the base of support, reduced as it is to the space comprehended by the metatarsus and toes ; all these circumstances render the erect posture little secure, and progressive motion rapid, unsteady, and limping.*

It has been noticed by Sir B. Brodie, that sometimes the two lower extremities are not of precisely the same length ; and that this may be the result of original formation, the femur and tibia of one side being respectively longer than those of the other side. If the whole of this difference amounts, as it sometimes does, to an inch, or an inch and a half, the individual is observed to limp in walking, and the great trochanter belonging to the longer limb is lighter and more prominent than that of the other ; and this might lead a superficial observer to mistake the case for one of diseased hip.

* On Deformities of the Spine, by L. Beale.

CHAPTER V.

ON PUERPERAL AFFECTIONS OF THE JOINTS.

SECTION I. ON THE SYMPTOMS.

IN the puerperal affections, which I wish to describe in the following pages, the patient is first attacked with pains in the limbs, especially in the region of the joints, and the pains so much resemble rheumatism, that the affection has been termed *puerperal rheumatism*. Swelling of one or more of the joints usually occurs, sometimes without any discoloration of the skin; at other times there is a blush of redness over the swollen parts, and these spots often appear in different parts of the limb. If the patient is not rapidly cut off, several limbs or joints in succession are attacked. In one of the cases which came under my notice, the skin and cellular tissue over the right knee joint was first affected, and at the end of a fortnight, just when the local affections appeared to be subsiding, the left ankle-joint was attacked in the same way. The cellular tissue beneath becomes loaded with serum, the parts are exquisitely painful, and the pain is aggravated by the slightest motion. But there may be an œdematous state of the whole limb caused by effusion of serum into the cellular tissue, and yet no dis-

coloration of the skin; this was the condition of the left fore arm in the case of Shaw. Abscesses form in different parts of the body, and sometimes sloughing of the cellular tissue takes place, and the parts beneath become exposed. In one of Dr. Robert Lee's cases, a soft puffy swelling formed, about the size of a hen's egg, over the back of the hand down to the wrist; it gradually enlarged, and was accompanied with considerable swelling of the fore arm. The integuments were completely destroyed by sloughing, and the extensor tendons laid bare. Dr. Ferguson* mentions that he has seen the calf of the leg become black and gangrenous in a few hours; the vagina and external organs of generation, however, are the parts most frequently attacked in this way.

Sometimes depositions of matter take place in the substance of the muscles, and those of the calves of the legs and back of the fore arm are the most common seat of it.

The joints are very often the seat of depositions, and these depositions take place very suddenly in some instances, and even without much local suffering.

The following is the order of frequency of attack of the joints, according to Dugés:—

1. Hip. 2. Elbow. 3. Knee. 4. Foot. 5. Metacarpus. 6. Shoulder.

* Essays on the most important Diseases of Women, p. 30. A work which should be read and studied by all who take an interest in the subject.

The affection of the eye in the puerperal state is of rare occurrence, and, I believe, uniformly fatal. In the thirteenth volume of the *Medico-Chirurgical Transactions*, Dr. Marshall Hall and Mr. Higginbottom have published five fatal cases of this kind. The attack came on between the fifth and eleventh day after delivery ; it had always been preceded by some serious indisposition. In one case there were all the marked symptoms of intestinal irritation and of exhaustion from uterine hæmorrhage; in the second there was a continual and protracted diarrhœa ; and in the others much fever, with derangement of the functions of the bowels. In one case the eye was slightly affected but a day or two, when the patient died. In two cases there was great chemosis, the transparency of the cornea was destroyed, and the eye appeared collapsed during life, and in a fourth the patient survived the ulceration and sloughing of the cornea, the total destruction of the organ, and the subsequent healing of its anterior part. In Shaw's case, hereafter to be narrated, the affection of the eye appeared on the sixth day after delivery, and was attended with great pain in the globe, intolerance of light, inflammation and suppuration of the cornea. It is a singular coincidence that in my case and Dr. Marshall Hall's cases the *left* eye was attacked.

The disease is usually attended with great prostration ; the countenance is anxious, the pulse very quick from the commencement, seldom under

120. The respiration is hurried, the tongue red ; there is nausea and frequently diarrhœa.

No one set of internal organs invariably suffers ; sometimes the head is affected, though not very frequently until the last stage of the disease, for the mind is usually clear and tranquil during the greater part of the illness. The lungs are always functionally or organically affected. There is sometimes considerable abdominal pain during the whole attack ; at other times there is only slight pain, and that at the commencement, which soon subsides. The alimentary canal is very frequently affected. The secretions are not always suppressed, but sometimes continue during the disease.

The duration of the attack varies ; in one case it terminated fatally within forty-eight hours ; in another it was protracted to three weeks. Mr. Arnott mentions a case which was protracted nearly two months after delivery ; ten days after delivery the right knee became affected with pain and swelling, which gradually increased. Six weeks after delivery, when Mr. A. saw this patient, subluxation of the joint existed, the leg was bent to nearly a right angle upon the thigh, and the head of the tibia drawn backwards on the condyles of the femur. There was great swelling from matter in this situation, which was evacuated by puncture. The integuments were not discoloured, and little pain was felt except on attempting to move the leg. The pulse was 120,

and she laboured under great constitutional disturbance, with exhaustion ; another collection of matter formed, and was evacuated on the outside of the leg, a little below the joint. Symptoms of affection of the chest, with purulent expectorations, came on, and the woman sank.

The period also at which the patient is attacked after delivery is equally uncertain, usually varying, however, from the second to the fourteenth day.

SECTION II. ON THE MORBID ANATOMY.

ON examination after death of the limbs of persons who die from this disease, serum will be found effused into the cellular tissue, either to a small extent, as frequently over a joint, or along the whole of the limb. Sometimes abscesses form, containing pus, serum, blood, or a mixture of all. In Shaw's case the muscular and bony structures were not affected, but they do not always escape in this form of disease ; the muscles of the back of the fore arm and of the calves of the legs are most frequently attacked, and in such cases the muscular fibre is rendered quite soft, and pus is effused either between the fibres and along the tendons or over the surface of the muscles themselves. The bones are never, I believe, primarily affected ; but when involved, the disease extends from the synovial membrane and cartilages to the osseous structure. M. Velpeau narrates a case wherein the fibro-cartilage of the symphysis pubis

was softened, its fibres separated, and the interstices between them filled with a sanious, reddish, clear liquid; a small quantity of fluid of a similar nature was found in the synovial membrane of the knee-joint, and the hip-joint contained between one and two table-spoonfulls of very fetid pus.

In Dr. Helm's paper on puerperal diseases, mention is made of the parotid gland being not unfrequently affected with much tumefaction and inflammation, ending in suppuration.

Inflammation of the eye in the puerperal state is, as I before stated, of very rare occurrence, and I have not been able to find in any author a full account of the morbid appearances of this organ in this disease. In Mr. Arnott's paper on Secondary Effects of Inflammation of Veins, in the fifteenth volume of the *Medico-Chirurgical Transactions*, a fatal case is related, where the eye was attacked in a patient who had inflammation and suppuration of the saphena vein. The eye was examined after death, and the crystalline lens was found to be so soft as to yield to the slightest touch; the vitreous humour was of a reddish-yellow colour, and red vessels could be distinctly seen traversing its membranes. In Shaw's case, already alluded to, there was effusion of pus between the layers of the cornea, change of colour in the lens, and vitreous tumour, inflammation and thickening of the choroid, with similar appearances in the retina.

Of the internal organs, the brain and its mem-

branes are less frequently attacked than any others. Sometimes, however, we find effusion between the membranes of the brain and into the ventricles, an injected and congested state of the vessels and softened state of the brain itself; occasionally there is a purulent infiltration into the cerebral substance. The pleuræ are very often inflamed, and unusually large quantities of serum are found in their cavities. At other times there is sero-purulent or sero-sanguinous effusion, without the slightest trace of vascularity of the pleura. Purulent depositions and infiltrations take place in the lungs, and the lungs themselves have been found greatly condensed, of a dark-red colour, or completely gangrenous. The heart is often softened and enlarged, the pericardium inflamed, and containing serum and lymph. White patches have been observed on the covering membrane of the heart.

The peritoneum is sometimes extensively inflamed; at others only in particular parts, as upon the surface of the liver; the mesentery and omentum and the peritoneum are occasionally quite free from morbid appearances. Again a considerable quantity of fluid of a dirty-yellowish colour, mingled with shreds of albumen and false membrane, is found effused into the abdominal cavity, and the intestines inflamed and agglutinated, whilst at other times there is no effusion at all, and the intestines are healthy. The mucous membrane of the stomach and intestines is often

softened, and their coats even perforated. The liver and spleen are also sometimes the seat of purulent depositions. In the account of the dissections gived by Dr. Hulme, a fetid serosity, mixed with pus, was found in the abdomen. There were also abscesses in the omentum in some instances, and it was not unfrequently observed that this viscus was the part chiefly affected. However, it is by no means clear that many of the cases which this author designates "puerperal fever" might not have been simple peritonitis supervening on the puerperal state, and entirely devoid of the distinctive characteristics of those affections of which we treat.

The inflammation of the peritoneum is often so general as to implicate the outer covering of the kidneys; these organs are often found gorged with blood, softened, or containing purulent depositions. It seldom happens, however, that both kidneys are affected at the same time.

The uterus is usually found larger than natural, its parietes thick, softened, and of a brown or black colour, and its cavity lined with a reddish brown secretion of a fetid odour. At the same time the veins which ramify in the substance of the uterus are filled with pus. Dr. John Clarke mentions this state of the womb, although he does not allude to it in connexion with puerperal affections of the limbs. "On cutting into the substance of the uterus," he observes, "pus is often found, which in all cases I have met with is

situated in the large veins of the part. Pus is sometimes also found contained in the cavity of the fallopian tubes, and also in the substance of the ovaries, which are distended by inflammation and matter so as to equal in bulk in some cases a pigeon's egg." When the uterus is thus affected, an inflammatory condition is set up in the veins which have been exposed by the separation of the placenta, and as the veins permeating the parietes of the uterus are intimately adherent to its substance, the inflammatory action usually extends from the veins to the substance of the womb itself.

The veins in the ovaries, round ligaments, and fallopian tubes are usually found inflamed, their inner membrane is of a deep-red colour, and lined with lymph, which adheres firmly to it, and even sometimes obliterates its cavity; at other times their coats are thickened and contain pus or blood. The inflammation of the veins is sometimes accompanied with enlargement and suppuration of the ovaries and round ligaments, especially the former. Very often the veins are only found inflamed on one side of the uterus. In eight cases of phlebitis, M. Dance found the inflammation to extend in three to both ovarian veins at the same time, in one case to the left ovarian vein only, and in four to the right ovarian veins exclusively; and he concludes that the veins of the right side of the womb are more exposed to inflammation than those of the left. In the epidemic puerperal

affection that prevailed in 1746, Van Swieten mentions that in many cases the ovaria were found in a state of suppuration. (Comment. on Aphor. 1329.)

The lymphatic vessels of the uterus are also found to contain pus. M. Tonnelé first described this state of the lymphatics, and he considers this morbid condition as important as that of phlebitis. When the lymphatic vessels contain pus, they may be easily distinguished from the veins by their superficial situation on the sides of the uterus, and the surface of the broad ligament, by the thinness of their coats, and by the whitish and beaded appearance which they give to the membrane covering them.

Although some of the morbid appearances which I have just described are frequently found in puerperal affections of the joints, still cases occasionally occur in which, on the most minute examination, no morbid change can be detected in any of the internal organs—not even in the uterus and its appendages. Dr. Robert Lee* says that he was inclined to believe that the violent and destructive affections of the joints which sometimes occur in puerperal women were invariably connected with inflammation of the uterine veins, but he was obliged to change his opinion, and has related some fatal cases in which no morbid alteration of structure in the coats of the uterine veins could be detected. In two of

* Medico-Chirurgical Transactions, vol. xv. p. 417.

my cases, in which there were extensive affections of the limbs, no disease could be detected in the veins. Dr. Ferguson has also mentioned cases of this kind.

Again, very extensive secondary deposits take place in the limbs, whilst the extent of the veins inflamed is very slight. In the first case of this kind which I examined, there was effusion with pain in the right leg and left arm, and redness over the ankle and wrist, whilst a very small extent of the right iliac vein only was found affected, and this in a slight degree. M. Dance, in his able memoir, has alluded to this discordance between the phlebitis and the number of the secondary suppurations. In some of the cases recorded by him as well as by other pathologists, there were found abscesses not only in several of the joints, but also in many of the muscles and viscera, when only one or two inconsiderable veins were inflamed. Lastly, it frequently happens that uterine phlebitis will be found to exist whilst no purulent deposit takes place in the limbs.

SECTION III. ON THE PATHOLOGY.

ON looking into the writings of Hippocrates, we find much valuable information on this important subject. In his book "*De Morbis Vulgaribus*," Hippocrates narrates the cases of the wives of Epicrates, Philinus, and Dromeda, all of whom were attacked after delivery with rigour, followed

by acute febrile symptoms, pain and swelling of the abdomen, and other symptoms, much resembling those of puerperal fever; and in his aphorisms he further notices the fatal character of the disease from which he says in another part of his writings "few escape." Hippocrates attributed the origin and nature of the disease to erysipelas. Aëtius, another of the early Greek writers, describes the symptoms of inflammation of the uterus supervening in the puerperal state :* with singular accuracy, we find that Mercurialis, the learned translator of Hippocrates, mentions that erysipelatous fever is apt to supervene in the puerperal state; and remarks that scarcely any recover from it.†

I deem it not less important than interesting thus to point out how long ago a disease affecting the surface in its ordinary form was associated with the puerperal state; but beyond a bare allusion to the subject by the older authors, and a servile repetition of their observations by those who for centuries succeeded them, we find the investigation at a stand-still until the time of the Arabian physicians; when we find Avicenna, about the year 1000, noticing the diseases of the puerperal state, and, amongst the rest, puerperal fever, which he attributed to a stoppage of the lochia.

Felix Plater, in 1602, advocated this theory;

* Vide Cornarius's Edition, p. 1008.

† De Uteri Inflam. Prognost.

and both Sennertus, in 1634, and Riverius, in 1640, adopted the same opinion; but they went a step farther, and asserted that the effect arose from the impurities collecting in the veins of the uterus, and other parts which it was the office of the lochia to eliminate and discharge.

In the year 1662, Dr. Thomas Willis wrote on puerperal fever, without advancing anything new or important concerning it. He also attributed the origin of the symptoms to "a depraved condition of the blood," not arising from the lochia, but from the large suppression of the menses during pregnancy.

Mauriceau, in 1668, returned to the old doctrine; and, in 1716, Dr. Edward Strother, in his "*Criticon Febrium*," was the first who called this affection "puerperal fever."

In 1751, Dr. John Burton revived the Hippocratic doctrine, that the disease consisted in an inflammation of the uterus; and Dr. Smellie, who published his "*Theory and Practice of Midwifery*" in the year following, sustained the same opinion, and attributed the cause to the suppression of the lochia. But from the account which I have given of the disease, we are enabled to infer that neither the imputed nature of the disease, nor its assigned cause, is correct, seeing that it very often happens the uterus is found on dissection in a perfectly healthy state, and, as frequently, that the lochia have never been suppressed.

It was called the milk fever about this time by many, from the supposition that it arose from the suppression of this secretion, and they were strengthened in this opinion from the milky appearance of the fluid that was often found effused into the abdomen or thorax, in the same way that others had ascribed phlegmasia dolens to the same origin from the white appearance of the tumefaction.*

It is, however, to the history of the various local affections occurring in what has been too vaguely termed *puerperal fever*, I wish more particularly to draw attention. One of these, phlegmasia dolens, was first distinctly mentioned by Rodrigues à Castro, in 1603, in his work “*De Universâ muliebrum morborum medicinâ*.”† Wiseman, in 1676, relates the case of an apothecary’s wife in the Old Bailey who had it, the particulars of which were as follows:—

“An apothecary’s wife living in my neighbourhood in the Old Bailey, after a hard child-bed labour, was seized with a fever and great pain in her right thigh, from the groin and hip downward to the knee, swelling the member round, without inflammation or discolouring the skin. Sir F. Pr. was the physician, and I think Sir

* It was on this account that the French gave the names of “*dépôt laiteux*” and “*métastase laiteuse*” to these affections: however, the observations of pathological anatomy, and the progress of animal chemistry, have placed the theory of the disease on a more rational foundation.

† Lib. iii. c. 17. Lib. iv. c. 18.

C. Scarb. The surgeons were Mr. Bing and myself. The part was fomented with various herbs boiled in wine and water, and a poultice was applied. But the whole member being oppressed and weakened by the influx, it apostemated, and matter was felt to fluctuate in several parts. We opened the most likely places by caustics, and gave vent to a large quantity of purulent matter. Then dressing the eschar with lenients, we applied the cataplasm, and rowled it up. She was somewhat relieved, but rested ill that night. At the next dressing we enlarged the opening with a pair of scissors, and gave more way to the discharge of the matter. Afterwards, we continued our care in dressing her, and made other apertions in parts more declining, and by injections made of *rad. aristoloch. rad. consolid, irios, sarcocollæ, thuris, myrrhæ*, decocted in *aq. hordei*, with *mel ros.* Many endeavours were used to cure these ulcers; but the matter grew more corrosive, and the flesh within dissolved, and we felt the thigh-bone bare. The humours all emptied themselves on this weak part; and notwithstanding all our endeavours, the patient languished and died in the space of eight weeks."—P. 33, ch. v. book 1.

Mauriceau, who first published in 1668, appears to have been well acquainted with the disease. He mentions the case of an aunt of his who had suffered from it, and was afterwards lame in consequence. This able man's opinion

of its origin was similar to that of Sennertus's respecting puerperal fever, the retention in the limb of humours that ought to have been evacuated. Puzos, on the other hand, attributed the disease to a deposit of milk in the limb, suggested most likely from the shining whiteness of the affected part.

This opinion prevailed very generally until the time of Mr. White, who was the first to deny its correctness; and John Hunter, in his public lectures, was in the habit also of combating this explanation of the origin of the disease; he denied that it arose from a deposition of milk in the limb, and thought it solely attributable to "something wrong in the constitution."*

Although the state of the veins had been observed by many pathologists in connexion with phlegmasia dolens, the credit of enforcing this view of the nature of the disease is certainly due to Dr. D. Davis, the present professor of midwifery in University College. There is an account of four cases of this disease by this able author, published in the twelfth volume of the Medico-Chirurgical Transactions, which were read before the Society in May 1823. Since this time the subject has been ably investigated by M. Velpeau and Dr. Lee. I have already noticed the state of the veins in phlebitis, how their cavity is found filled with coagulated lymph, or blood or pus, the first usually adhering firmly to the coat of the vein

* Vide Hall on Phlegmasia Dolens,

and how the inner coat itself is for the most part of a deep-red colour. Dr. Baillie, in his *Morbid Anatomy*, mentions a case of the total obliteration of the vena cava from phlebitis, and Mr. Wilson has published two similar cases.

Although puerperal affections of the joints are by no means of rare occurrence, they do not seem to have attracted much notice until a comparatively recent period.

One of the earliest cases which I have met with reading, is that recorded by Wiseman in the fifth chapter of the first book of his "*Chirurgical Treatises*," which is exceedingly interesting on account of the number of articulations affected. "I was called," says Wiseman, "to another (female), who in child-bed laboured of an ulcer in her left hip; the flesh was corroded round, the breadth of the palm of a hand: the whole piece separated and fell off from the bone, leaving it bare, and the lips of the ulcers sordid without inflammation or tumour." Wiseman dressed the bone with mundificants, and prescribed cordials internally. "But in the while," he continues, "a vehement pain seized the other thigh, and it apostemated. We opened it on the outside, and felt the bone carious; we gave vent to a foetid matter. To add to her affliction, she was tormented with a pain in her right shoulder and in her left knee, so that she was necessitated to lie upon her hips, which exasperated them. At length the great discharge of matter and extre-

mity of pain wasted her, œdematous swellings arose in her legs and feet, and she languished and died."

Mr. Cheston, in his chapter on white swelling, when treating of the symptoms and danger of suppuration in a joint, appends the following note containing an observation made by Dr. Simpson: "A critical deposition in the joints is frequently productive of a similar event (suppuration), and many women in particular, as Dr. Simpson has observed, have contracted it under the diary fever they are subject to in child-bed." Mr. Cheston adds, "of this a remarkable case has lately fallen under my care, where a patient was saved by a timely amputation." Mr. Cheston was surgeon to the Gloucester Infirmary, and published his "Pathological Inquiries" in 1766. Dr. Denman, in his Introduction to Midwifery, also alludes to the affection. "There is a peculiarity," says Dr. D., "in this puerperal fever, which I believe has not been hitherto observed or mentioned. It is an erysipelatous tumour of a dusk-red colour on the knuckles, wrists, elbows, knees, or ancles, about the size of a shilling, and sometimes larger. This is almost universally a mortal sign, and on inspection of those who have died with this appearance, the disease has been found to have affected principally the uterus and its appendages."

SECTION IV. ON THE CAUSES.

THE causes of puerperal diseases appear to be of two kinds, one arising from some unknown infec-

tious source diffused in the atmosphere which the patient breathes, the other taking its origin from something more cognizable to the senses. Mental emotions and indulgence in improper diet, for instance, are at times the exciting causes of phlebitis, a striking instance of which is given by M. Velpeau, in his *Recherches et Observations sur la Phlegmasia alba dolens*.*

“Vallette, æt. 18, a washerwoman, born in Paris, of a delicate and feeble constitution, but who nevertheless had never suffered from illness, entered the hospital of St. Dome, the 19th Oct., 1823, to lie in. The delivery presented nothing particular. On the third day, as the milk fever seemed on the point of terminating, she received some disagreeable intelligence, when the febrile symptoms immediately redoubled in intensity and the breasts continued much swollen. On the fifth day the lochia ceased, a cough supervened with some pain in the chest; the abdomen was soft, and not painful on pressure. Things remained in this state till the 11th day, when the symptoms diminished, and the fever ceased; there was appetite, although the tongue was rather dry. The treatment hitherto had been confined to regulating the diet and to diluents and a pectoral potion. On the morning of the 12th day we perceived that the patient had obtained some wine, and coffee was found on the *table de nuit*, of which

* Vide Archives Générales, Oct. 1824.

she had partaken repeatedly. In the evening cold chills and violent shiverings came on, followed by fever and sweat. The abdomen was not painful; there was no appetite; the cough continued (*Vésicatoires volans aux cuisses*).

“These symptoms were renewed daily until the 16th day, when they ceased, and she became better generally; a fresh irregularity in diet again brought on febrile symptoms on the 17th, attended with feeble and agitated pulse; the tongue was dry and furred; 18th better; 19th some appetite, the patient got up and ate; 20th renewed cold shiverings for two hours, followed by heat, pains in the groins, hypochondrium, and left side of the pelvis, the abdomen became suddenly swollen, and there was great faintness; (twenty-five leeches to the abdomen, followed by an emollient cataplasm); 21st the fever is less, and the meteorism almost entirely dissipated; but the abdomen remains sensitive to pressure in the hypogastrie and inguinal region. Until the 30th, no remarkable alteration; there has always been a dry cough; the chest is painful, and the breathing embarrassed: still the stethoscope does not indicate any lesion in this cavity. The complexion is pallid, yellowish (dull); the skin dry; nevertheless, on examination, no disease can be detected in any particular organ; the cough is gradually diminishing. On the 40th day it had wholly disappeared. On the 41st the left leg

began to swell, attended with violent pain in the thigh, groin, and haunch of the same side; this pain shortly extended over the whole limb; and it became impossible to lie on that side. 43rd, the limb is completely infiltrated; the pain is somewhat abated, except on pressure in the groin, a slough has formed on the sacrum; chills accompanied with violent shiverings and fever return irregularly from time to time. The tongue continues pale; the thirst urgent; the appetite momentarily restored; strength gradually diminishing, which every febrile attack lessens still more; the pulse is at one time small and feeble, at another quick, frequent, and somewhat raised. On the 59th delirium came on; 60th the eyes extinguished, and turned upwards; the eye-lids half shut; the face is livid; the delirium increases, the rattles preceded death for some hours, which took place at nine o'clock in the evening."

That depositions of pus in the joints are sometimes to be ascribed to inflammation of the veins, and not to any other special morbid influence, is rendered more than probable: by M. Dance, in the "*Archives de Médecine*" for December, 1838, where he gives a case of phlebitis occurring from bleeding. The patient was a coachman, twenty years of age, of good constitution, who, being seized with pleuro-pneumonia, was bled six times. Inflammation of the median vein took place where it had been opened, and, extending up the basilic vein, involved the

axillary glands, and a violent pain seized the left shoulder-joint. On the 4th day the right shoulder-joint was similarly affected. There were no external tumefactions of the joints, but the least motion or pressure aggravated it intensely. The patient died on the 5th day. Besides other morbid appearances, Dance mentions that both shoulder-joints were filled with pus, and a large abscess surrounded the fibrous capsule of the left articulation, spreading between the scapula and subscapular muscles on the right; a similar collection, spreading between the articular capsule and the deltoid, was found, and on the front of the neck under the first layer of muscles there was a vast abscess, but which did not communicate with either of those about the joints.

The same author likewise narrates a case of phlebitis affecting the vena portæ, which appeared to have been occasioned by the bites of leeches that had been applied to the hæmorrhoidal veins.* That peculiar affection of the eye which has been sometimes observed to accompany phlebitis has been known to follow the excision of a portion of a varicose vein. (See Dr. R. Lee's cases in the *Medico-Chir. Trans.*)

But while such like causes are sufficient to account for sporadic instances of the disease, nothing but some infectious cause is capable of explaining its prevalence as an epidemic.

M. Tenon in his "Mémorial des Hôpitaux de

* Archives Générales, Dec. 1828.

Paris," giving an account of epidemics, which prevailed in that city from 1774 to 1816, observes that in complicated puerperal fever, the fever is stronger with exacerbations, the tongue is black and dry, the belly tense, distended, and tympanitic, and but slightly painful. In some women the lochia have been either wholly suppressed or only diminished, others have experienced attacks of ophthalmia, others a red eruption on the arms or abdomen."

This efflorescence is, in many instances, of an erysipelatous character; in fact, erysipelas has been frequently observed to be associated with puerperal fever, especially in its epidemic form. This subject has been ably treated by my friend Dr. Weatherhead in an appendix to his work on Erysipelas.

The contemporaneous existence of epidemic puerperal fever and erysipelas was first distinctly mentioned by Malouin, in his account of the epidemics that prevailed in 1746. Malouin tells us that out of twenty females who were confined in the month of February in that year, in the lying-in wards of the Hotel Dieu, scarcely one escaped being attacked with puerperal fever, and that erysipelatous affections were equally common.

In the spring of 1750, puerperal fever was again epidemic, when its connexion with erysipelas was noticed by Pouteau in his "*Mélanges de Chirurgie*." This disease again prevailed as

an epidemic in 1770, and is mentioned by Dr. Leake. Three years after, we find it devastating the lying-in wards of the Edinburgh Infirmary, and Dr. Young, the then professor of midwifery in the University, in a letter to Mr. White, accounts for it by the contemporaneous existence of erysipelas, which not only affected the parturient, but attacked the wounds of those who had undergone any operation. In 1787 and 1788, puerperal fever again raged epidemically, and Dr. John Clarké likewise notices the prevalence of erysipelas. In the latter of these two periods we find that these two diseases were epidemic at the same time in the town of Aberdeen, and then it was that Dr. Gordon, of that place, almost went the length of averring that they were identical diseases, only modified in character by circumstances.

The last author I shall refer to on this subject is Mr. Hey, of Leeds, who, in giving an account of a fatal puerperal fever that spread its ravages in that town in the years 1811 and 1812, confirms the observations made by so many different writers of the simultaneous appearance of an infectious puerperal fever and erysipelas.

Hence, I think, we may safely accede to the opinion, affirmed by so much respectable testimony, that epidemic puerperal fever is, at times, of an infectious erysipelatous character.

There yet remains a few words to be said of phlebitis, and of that form of puerperal fever which appears sporadically.

To account for the cause of either satisfactorily is, in the present state of our knowledge, very difficult.

All testimony concurs in the remark, that both of these diseases are most apt to supervene in exhausted states of the constitution; and another observation has been made, that the lochia in all such constitutions is usually fetid: this latter remark was made by Madame Lachapelle, and is repeated somewhat emphatically by Madame Boivin. Now, could it be established by sure facts that any portion of this fetid matter was liable to be taken up either by the veins or lymphatics, we should then have some grounds that might enable us eventually to account for these singular depositions of purulent matter in the joints, which so frequently occur in puerperal affections. We know that the introduction of many other noxious matters into the circulation is followed by purulent formations, each according to its own specific law, in exemplification of which I have only to cite small-pox, the plague, and wounds received in dissection. Monsieur Dance, in speaking of phlebitis, and the train of serious symptoms accompanying it, observes, that they have a great resemblance to those affections which are occasioned by “a miasmatic infection of the fluids;” and many have thought that there was a peculiar miasmatic infection of the blood when erysipelas showed itself as an epidemic, and that the cutaneous efflorescence was merely the

external indications of it. This view of the pathology is that which was taken by M. Selle (*"De Curandis Hominum Morbis,"* translated into Latin in 1786, by Sprengel), who was inclined to consider the exanthematous efflorescence of erysipelas as a result of the efforts of nature to evacuate the "colluvies" contaminating the blood by the skin.

The researches of Lee, Arnott, Ferguson, and other contemporaries, have greatly contributed towards the elucidation of this subject. Much, however, remains to be done. The variety and intensity of these local affections, the co-existence at times of extensive internal morbid lesions, and at other times their entire absence, involve the origin of these complaints in considerable difficulty. The contamination of the blood, I must confess, appears to me the most probable explanation of the varied phenomena of these affections; they really seem, as has been recently expressed, to be the result of a poison "not confined to certain structures, as the peritoneum or uterus, where its violence is pent up and exhausted, but diffused by the circulation over many organs, causing each to re-act after its own laws, and giving to the disease it produces a character of inextricable confusion and almost hopeless fatality."

SECTION V. ON THE TREATMENT—CASES.

THE treatment of the constitutional symptoms attending these affections, involves the consi-

deration of the whole subject of puerperal fever, on which it is neither in my power nor province to enter. As to the affections of the limbs, if there be much power, or if the part be affected early, leeches should be freely applied. "They are contraindicated," says Dr. Ferguson, "where disorganizing processes appear in frames enfeebled by disease or constitutional causes. The local inflammation is even in the very last moments of life exceedingly painful, and seems to demand depletion; but unless the whole state of the patient be taken into the account, a dozen of leeches will turn the vibrating scale from life to death. It is when the eye is attacked that leeching will be oftenest useful. Mercury has been tried in phlebitis, but without benefit. There is a peculiarity in its use in this disease—I allude to the circumstance of its being almost impossible to produce the usual constitutional effects of this medicine on the mouth; and to this, it is not improbable, may be owing its curative inefficiency."

Dr. Beatty expresses himself as strongly disposed to try the effects of turpentine and the balsams, prompted by the known efficacy of these medicines in deep-seated inflammations of the eye which do not yield to mercury.*

When the seat of deposit is in the cellular and muscular portions of the limb, it should be covered either with a linseed-meal poultice, or with

* Dublin Journal, vol. xvi. p. 254.

flannels soaked in decoction of poppy and camomile flowers. The ease obtained is very great, the swelling subsides in many instances entirely, leaving the limb unscathed; in others it is removed in every part but two or three spots which are found to be puffed out with pus, which should be evacuated. When depositions take place in a joint, the treatment by leeching and poulticing will sometimes arrest the disorganization; in all it will give ease. But there is a tardy convalescence to be looked for, and, even with the best surgical attention, it is often impossible to prevent the loss of motion of the affected limb.

CASE I.—Swelling of the right leg and left arm after Parturition.*

Sarah Reynolds, aged twenty years, of a delicate habit and fair complexion, was seized on Thursday the 22d day of October, 1832 (fourteen days after delivery), with head-ache and numbness of the right ankle. On the following day (the 23d) she was greatly distressed with pain and swelling of the right leg and left arm; there

* The cases related in this chapter occurred in the City of London Lying-in Hospital.

I gladly avail myself of this opportunity of expressing the great obligation which I owe to my respected friend Dr. Lidderdale, of Blandford-square, formerly physician to this institution, for the facilities which he afforded me in the prosecution of this interesting branch of pathological knowledge, and for his unremitting kindness during a long series of years.

was a blush of redness at the ankle and at the wrist; pulse small, quick, and fluttering (144 a minute), skin hot and dry; tongue parched and rather brown; alvine and urinary secretions natural; continued to suckle her infant; lochia not suppressed.

On the 24th the symptoms continued nearly the same; but on the 25th she began to sink, and expired early in the morning of the 26th.

The body was examined thirty hours after death. The spermatic veins of both sides were carefully traced and found quite healthy, the veins of the pelvis, with the exception of the right external, were also in a natural state; this vein was a little thicker and more vascular than natural, and contained some coagulable lymph. The uterus was not diseased, nor indeed could any disease be ascertained in the abdomen. The femoral vein was quite healthy. There was a considerable effusion of sero-purulent matter beneath the skin covering the right ankle joint, and a small quantity beneath the integuments covering the wrist. Permission could not be obtained to examine the other parts of the body.

CASE II.—Swelling of the Upper Extremities after Delivery.

Sarah Milne, aged eighteen, was seized at six P.M. December 26th, 1832, with shiverings; these were followed by aching pains over the whole

body, particularly in the joints; great heat and dryness of the skin, and also occasional delirium. The pulse was extremely quick (140), tongue white and clammy; face pale and countenance anxious; bowels costive.

Some aperient medicines were ordered, and, in case the delirium continued, twelve leeches to be put to the temples.

December 27th. Has passed a restless night, the delirium continuing at intervals. The leeches were applied and bled well. The lochial discharge continues. The infant died in convulsions this morning, and at present there is no secretion of milk.

One P.M. The upper extremities are swollen from near the axilla to the wrist joints, and over the left wrist there are two or three red spots. Pressure on any part of the limb gives great pain, particularly in the course of the vessels and on the joints. The swelling is very tense, but does not pit on pressure. The knee and ankle joints are very painful, but the lower limbs are not swollen. The patient complains of great thirst; the skin is hot and dry; the action of the pulse rather strong, and very rapid; slight delirium, and a tremulous convulsive motion of the muscles of the face. V.S. ad $\text{̄}xij$. Saline mixture, with diaphoretics.

The patient felt easier after the bleeding, but died at 6 P.M. The body was examined on the following day. There was no organic disease in

any part, but there was considerable effusion into subserous cellular tissue of the abdomen, also between the pia mater and the arachnoid, and the pericardium contained above an ounce more of fluid than natural. The swelling of the upper extremities was occasioned by effusion of serum into the cellular tissue. The sinuses of the brain, as well as the veins of the abdomen, pelvis, and upper extremities, were carefully examined, but presented no traces whatever of disease.

CASE III.—Swelling of the right knee-joint after Parturition.

Jane House, aged thirty-two, of a delicate constitution, was seized fourteen days after delivery of her fourth child with severe pain of the right knee-joint; in a short time the knee began to swell, and a blush of redness made its appearance on the integument covering the joints. The pain was aggravated on pressure or motion of the part. The constitutional symptoms had very much the same character in this as in the preceding cases, but the local affection was much more severe, the pain and swelling of the joint being greater. The case terminated fatally in six days.

The body was examined twenty-four hours after death. There was considerable effusion of turbid serous fluid into the abdomen, and the peritoneum covering the pelvis and abdominal viscera was

inflamed. The uterus itself was a little softer than natural, but no trace of disease could be detected in the veins of the pelvis or in the right femoral vein. There was a considerable effusion of serum into the cellular tissue covering the right knee-joint.

Two other cases of this kind occurred in the Lying-in Hospital this year (1832); one terminated fatally in three weeks, but no examination was allowed to be made of the body; in the other the patient was removed from the hospital during the progress of the complaint, and I am unacquainted with the result of the case.

CASE IV.—Effusion into the Cellular Tissue and Joints, with Inflammation of the left Eye, occurring after Delivery.

Mary Ann Shaw, aged 32, was admitted September 12th, 1839, and delivered in the evening, after a fair time, of her sixth child (a girl). She went on well until the third day, when she was seized with shivering, and complained of pain on pressure just above the pubes, attended with sickness and slight febrile action. By the application of leeches to the abdomen and the use of mercury these symptoms were relieved.

On the fifth day the patient complained of pain in the centre of the right leg, which on examination was found inflamed and swollen in two distinct spots on the inner side of the tibia, and on

inquiry the patient stated that she had received a kick in this part a month before her admission. The whole leg was enveloped in a poultice, and two days after, a discharge of dark sero-purulent fluid took place from the most prominent part of the swellings. There were some faint-red spots about the right knee, and the joint was painful on pressure; at this time no severe constitutional symptoms had manifested themselves, but the pulse was very quick and rather small. The spots on the knee disappeared, and the left eye then became inflamed, attended with deep lancinating pains in the orbit and head. Leeches were applied to the temples and a blister to the neck, by which means the cerebral affection was relieved, but the inflammation of the eye continued the same. The cornea presented a very hazy appearance; the pupil was contracted, but circular, and the vision very dim; the conjunctiva was slightly inflamed.

September 20th. A spot an inch and a half in length was discovered on the radial side of the olecranon of the right arm, the joint was painful on pressure and slightly swollen. The veins of the fore arm were very distinct, but the limb was not swollen. The constitutional symptoms now became alarming; there was severe head-ache, with slight wandering; cough; hurried respiration; pulse 140, and easily compressed; tongue bright red and dry; nausea; tenderness and slight tumefaction of the abdomen; thirst; skin hot and

occasionally moist. Bowels open, urine scanty and high coloured. The patient was removed to a ward where there were no other persons. Mercury had been discontinued in consequence of acting on the bowels, and saline medicines given, but its use was resumed. Warm fomentations to the local affections.

September 21st. Passed a restless night, complained of great pain in the head, pus between the layers of the cornea, conjunctiva more inflamed, pulse 140. Bowels much acted on by the mercury. The spot on the right elbow was of a duller hue, and the part more swollen. No other joint affected. The other symptoms the same. Discontinue the mercury.

Sunday 22nd. In a comatose state; pulse very quick and feeble. Eye in the same state as yesterday, the colour of the spot on the joint fainter.

Monday 23rd. Delirious; eye in the same state; red appearance of the right elbow subsided; the left fore arm considerably swollen in its whole extent, but not discoloured. Two circumscribed abscesses in the right leg, a little above those which had previously formed. The patient gradually sank and died at five o'clock the following morning.

The secretions stopped on the third day after delivery. The patient had been in bad health about a month previous to her admission, and on the day of coming to the hospital had received a fright.

September 24th. Post-mortem examination eleven hours after death. Circumscribed effusion of sero-purulent fluid into the cellular tissue between the skin and fascia in the middle of the leg, through which the saphena vein ran; vein not affected. Right knee-joint contained between three and four ounces of pus of a greenish hue. Synovial membrane, cartilages, and bones sound.

Right elbow joint contained a table-spoonful of thick pus, the synovial membrane and cartilages healthy.

Left fore arm: cellular tissue more or less infiltrated with serum in its whole extent.

The brain, chest, and abdomen were minutely examined. In the former there was considerable effusion of serum between the reflected layers of the arachnoid, and the arachnoid itself was opaque. The brain was quite healthy. No morbid appearances could be detected in the sinuses.

Eye. There was pus between the layers of the cornea, particularly between the two corneæ of Jacobson. The lens and vitreous humour were darker than usual, being slightly yellow. The retina was thickened and congested, particularly at the upper and back part; the choroid was inflamed and thickened at the back part. Aqueous humour and iris healthy.*

* I am indebted to my friend Mr. Pilcher for this account of the morbid appearances of the eye.

The lungs were perfectly healthy. The right auricle was rather softer than natural, and contained some fluid blood.

The peritoneum and abdominal viscera were healthy, and there was not the least effusion of lymph or serum into the abdomen or pelvis. The left spermatic veins were considerably distended, their coats were thickened, and contained pus. The right spermatic veins also contained pus, and were partially lined by an adventitious membrane. The veins of the postero-inferior surface of the neck of the uterus also contained pus. The substance of the uterus was healthy, but its lining membrane, towards the neck, had a black congested appearance. The iliac veins contained some fluid blood but no pus.

CASE v.—Swelling of the Joint, with Abscesses in the Right Thigh and Leg, after Parturition.

Mary Lander, aged 36, was admitted October 4th, 1839, and delivered on the following day of her twelfth child (daughter). For ten days after her delivery there was considerable flooding, from the effects of which she felt very weak and looked pale, but complained of no pain. On Saturday, November 23rd, she experienced pain in the right ham; this was followed by the formation of a small abscess on the outside of the right leg a little below the joint, and a larger one on the

middle and posterior part of the right thigh; these were well poulticed, and in a few days they were opened. There was a discharge of sero-purulent fluid from the wounds for two or three days, and at the end of a week they were quite healed. The patient complained of no pain; she was in a weak state; the pulse quick (130), and countenance pale; she was ordered quinine mixture and nutritious diet; continued in this state till December 6th; the pulse, debility, and state of countenance remaining the same.

December 6th. This morning was seized with rigor and complained of pain in her right knee-joint and stiffness in the right shoulder. On examination I found the right knee-joint swollen and very painful on pressure, but not discoloured; the whole limb was slightly swollen, and she was unable to raise it without great pain. The right shoulder-joint was very painful on pressure, but not swollen or discoloured. The patient experienced pain in no other part. She slept a good deal; the countenance had a slight tinge of yellow; respiration very quick, and frequently interrupted by a sigh; slight hacking cough; pulse 140 and small; tongue red and moist; belly swollen; bowels open.

December 7th. Right shoulder not so painful as yesterday; right knee more swollen and painful; suffusion of tears the whole day, but no inflammatory condition of the eye; no change in the constitutional symptoms, excepting that the

respiration and pulse are quicker, and tongue brown in the centre: hot poultice to the knee.

December 8th. Right knee-joint rather more swollen; pain in the course of the femoral vessels; tongue covered with a brown fur and teeth encrusted with sordes; other symptoms the same: quinine medicines and nutritious diet.

December 9th. Had another shivering this morning; cough more troublesome; other symptoms the same; her powers were failing, and she died the following day.

After the hæmorrhage ceased, no discharge took place until the end of the first month, when it showed itself in the usual way for two or three days. The secretion of milk continued pretty abundant till two or three days prior to death. The bowels were open daily during the whole of the illness, and the evacuations were loose. The body was examined eight hours after death.

Right knee-joint contained three ounces of a greenish viscid pus; inferior edge of the synovial membrane was vascular, and absorption of cartilages, to the size of a sixpence, from the centre and posterior part of the patella had taken place; femoral vessels were not diseased.

Slight effusion of serum into the cellular tissue surrounding the right shoulder joint; interior of the joint sound.

There was effusion of serum to the extent of two or three ounces on each side of the chest; on the right side, the pleura was not in-

flamed; right lung, when cut into, in every part voided a large quantity of frothy muco-purulent matter; the right bronchi were also filled with the same fluid. At the root of the right bronchus there was a calcareous deposit of the size of an almond, and two or three enlarged glands. Left lung was adherent anteriorly to the pleura, but the adhesion was easily torn through. The upper and anterior part of the left lung contained the same fluid as the right; the posterior was very much congested, and presented, on being cut into, a dark livid appearance.

Heart and veins of the chest healthy.

Abdomen. No effusion whatever into the abdomen or pelvis. Liver enlarged, and its anterior surface adherent to the peritoneal covering of the abdominal muscles; softened in structure. Abdominal viscera healthy. Uterus of the natural size; its posterior surface, near to the neck, presented a dark congested appearance; on cutting into the substance of the uterus there was a copious exudation of pus from the parietes, just within the os, to the extent of an inch and a half; the matter exuded from every granule, and could not be traced from any one structure in particular: beyond this point the parietes of the uterus were remarkably healthy. The interior of the uterus was lined with a puro-sanguinolent fluid of a fetid character. The veins of the abdomen and pelvis were minutely examined just at the point of bifurcation of the left common iliac vein, a

considerable quantity of pus was found, and the left external iliac vein was coated with coagulable lymph, which was adherent to the lining membrane of the limb.

Brain was not examined.

Mr. Gulliver and Mr. Dalrymple examined the blood taken from the inferior vena cava, just at its entrance to the auricle, on which they obligingly made the following report :—
“ Besides the usual blood corpuscles, there exist pus globules, in our opinion true pus, viz., special bodies, whitish and granular on the surface, with a shell easily rendered pellucid by sulphurous and acetic acids, and then showing three or four central molecules, these latter being unchanged by most acids, and easily dissolved by caustic alkalies. Diameter of pus globules $\frac{1}{3000}$ to $\frac{1}{2400}$ of an inch.”

I am indebted to Dr. Munk, physician to the Tower Hamlets Dispensary, for the following interesting case. Notwithstanding the number and extent of the purulent deposits, no vestige of diseased action was discovered in the vessels.

“ A woman of Leyden, æt. thirty-four, after a lingering labour, was, on the 2d of June, 1837, delivered of her first child. On the following day she had a severe rigor, which was succeeded by

heat of skin, flushing of the face, uneasiness in the head, rapidity of pulse, and some pain in the lower part of the abdomen. This latter symptom was relieved by the abstraction of eight ounces of blood from the arm, and the application of twenty leeches. But the general constitutional disturbance continued unabated. On the 5th the tenderness had almost vanished; but diarrhœa and irritability of the stomach had supervened. She was altogether very much sunk; the pulse was rapid, the tongue of a dark-red colour, the eyes glassy, the skin of a dirty hue. She complained of oppression about the chest; there was an anxious expression of countenance and circumscribed redness over the malar bones. Ammonia with opium and decoction of bark was ordered to be given every four or six hours. On the 6th she appeared much the same, had passed a very restless night, complaining of some pain in the whole of the left lower extremity, worse in the mass of muscle forming the calf and in the knee-joint. These parts were found upon examination to be hot, tender, and of a dark-red colour. She next complained of similar pains in the left arm, aggravated on motion and by pressure, but here the skin was not discoloured. She was at this time in a state of extreme prostration. Soon afterwards became insensible, and died early on the morning of the 8th.

“ *Post-mortem.* The cavity of the peritoneum

contained from three to four ounces of a dirty-coloured fluid, with which there were intermixed some shreds of coagulable lymph. The peritoneum generally was of a natural appearance, that part only excepted which covers the uterus, and here it was coated with a layer of almost diffuent lymph, which was removable with the greatest ease by the handle of the scalpel. The uterus itself was of considerable size, its parietes were thick, very much softened, and of a blackish red. A quantity of thick grumous blood exuded upon our incisions, but nowhere could we detect pus or anything however distantly resembling that fluid. The left leg was much swollen, of a dark-red colour, and at its back part immediately below the knee perfectly livid. On laying open the leg, the whole muscular substance was found of a dark-red colour and softened. Collections of pus existed in the thick portions of the gastrocnemius and soleus, and in the popliteal space the vessels were detached from the adjacent parts, and lay naked in a purulent sanies. *The vessels, both here and elsewhere, although examined with the greatest care, were found in a perfectly healthy state.* The capsule of the knee was hard, tense, and distended, and a flow of sero-purulent fluid followed the insertion of the knife. The synovial membrane was opaque and thickened, but no increase of vascularity was observable. The arm of the left side presented similar appearances,

though in a lesser degree, and a small quantity of puriform fluid existed in the elbow-joint. After opening the head and thorax, in which there was nothing abnormal, we were about to leave the body, when a slight redness and puffiness were observed about the scapula of the right side. Examining this, we found the supra and infra spinatous muscles in a similar state to those of the leg, and in the subscapularis were three or four collections of pus, none of them exceeding in size a small hazel-nut. The shoulder-joint was free from disease."

DESCRIPTION OF THE PLATES.

PLATE I.

THIS represents the head of the femur taken from Mr. Key's patient, whose case is related at page 48. The specimen was not injected.

a. The round ligament in a state of high inflammation.

b. An ulcerated spot on the cartilage.

c. Inflamed synovial membrane, with ulceration of the cartilage commencing just at the point where the membrane is reflected on the cartilage.

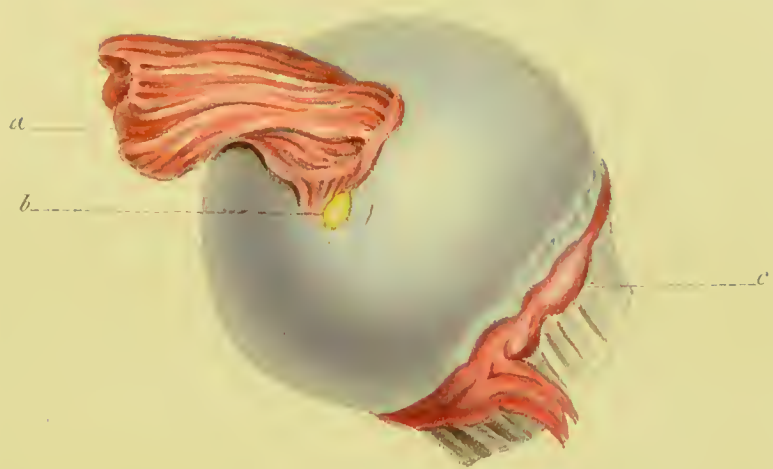


PLATE II.

THIS plate represents the specimen taken from the child whose case is related at p. 52.

a. Ulceration of the cartilage of the head of the femur, at the upper part of which a remnant of the attachment of the round ligament is seen.

b. Reflected capsular ligament, and synovial membrane, with frimbriæ of the latter extending to ulcerated spots in the cartilage.

c. Synovial membrane inflamed.

d. Margin of the acetabulum, presenting a serrated appearance, the effect of ulceration.

e. A purulent secretion from the synovial membrane, which nearly filled the acetabulum ; beneath this the acetabulum was not diseased.

The preparation is in my possession.



PLATE III.

FRONT view of right os innominatum and femur.

Head of latter almost entirely destroyed, irregular, and somewhat conical; considerable new deposit external to attachment of capsular ligament, and also along the linea aspera. Bottom of acetabulum gone, and margins deficient.

Ossa pubis and ischii almost detached from the ilium.

The patient, a male, æt. 25, received a kick from a horse behind the trochanter major; he had great pain in the groin, increased by pressure—limb was much shortened—toes everted—an extensive abscess formed on the inside of the thigh, from which two pints and a half of pus were discharged. Profuse fetid discharge continued from the wound; colliquative diarrhœa and sweating occurred, attended with hectic fever, and the patient at last sunk. The disease was of eighteen months' duration.

a. Remaining neck of femur.

b. Separation of the pubes from the ilium, and opening into the pelvis.

c. Osseous deposit external to the capsule.

*The preparations illustrative of Plates III. and IV. are in
Mr. Liston's collection.*

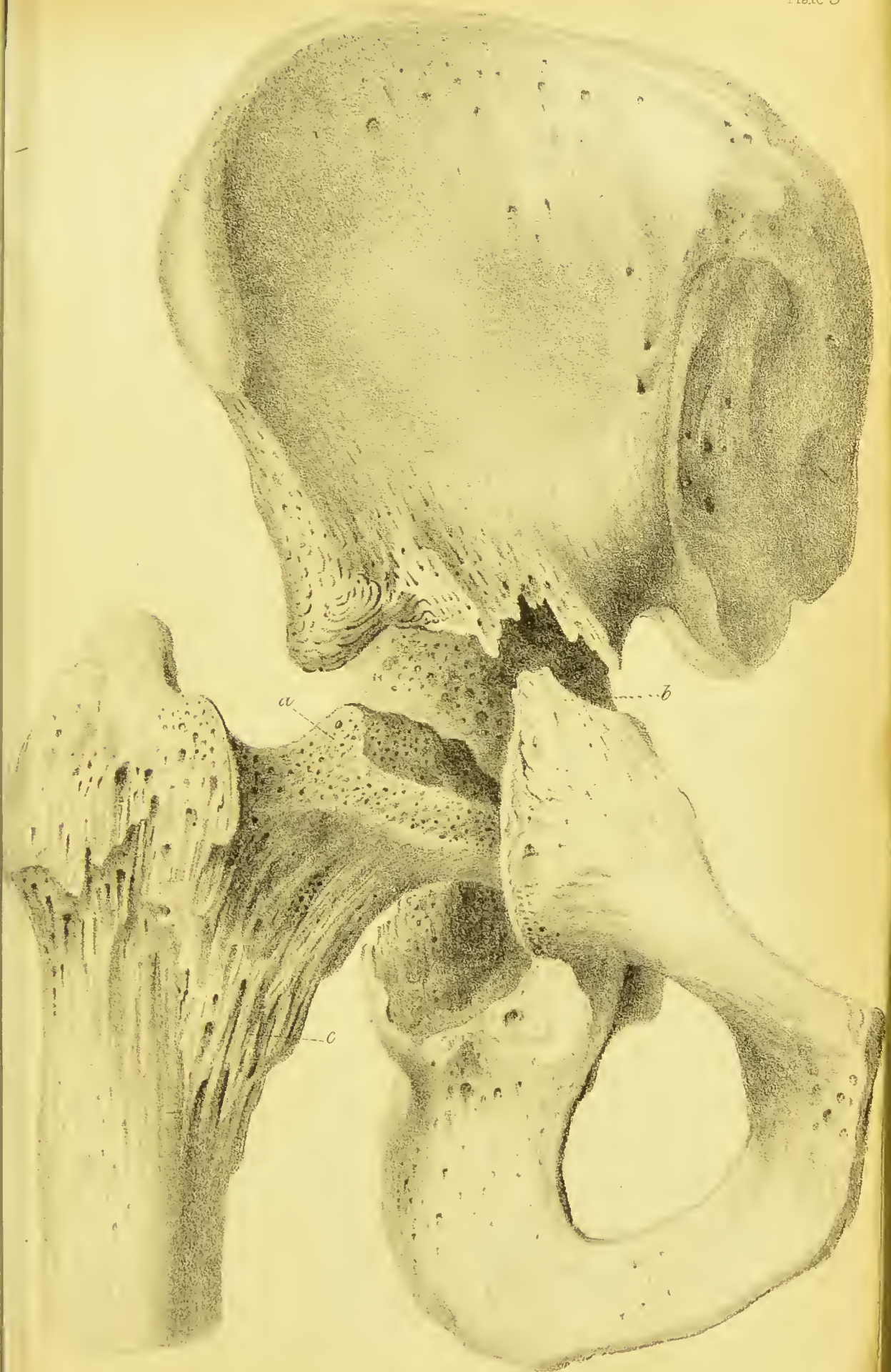


PLATE IV.

POSTERIOR view of a left dislocated femur from disease with the os innominatum.

This specimen was taken from a patient twenty years of age, who had laboured under the disease two years.

The limb was considerably shortened, and there were large abscesses in the region of the joint, from the discharge of which the patient sunk. The head of the bone is diminished in size, deprived of cartilage, and of irregular shape, and lies on the dorsum of the ilium.

a. Head of the femur diminished in size.

b. The mark on the ilium where the head of the bone was lodged.

c. A remnant of the capsular ligament.

